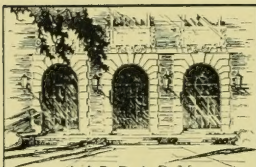




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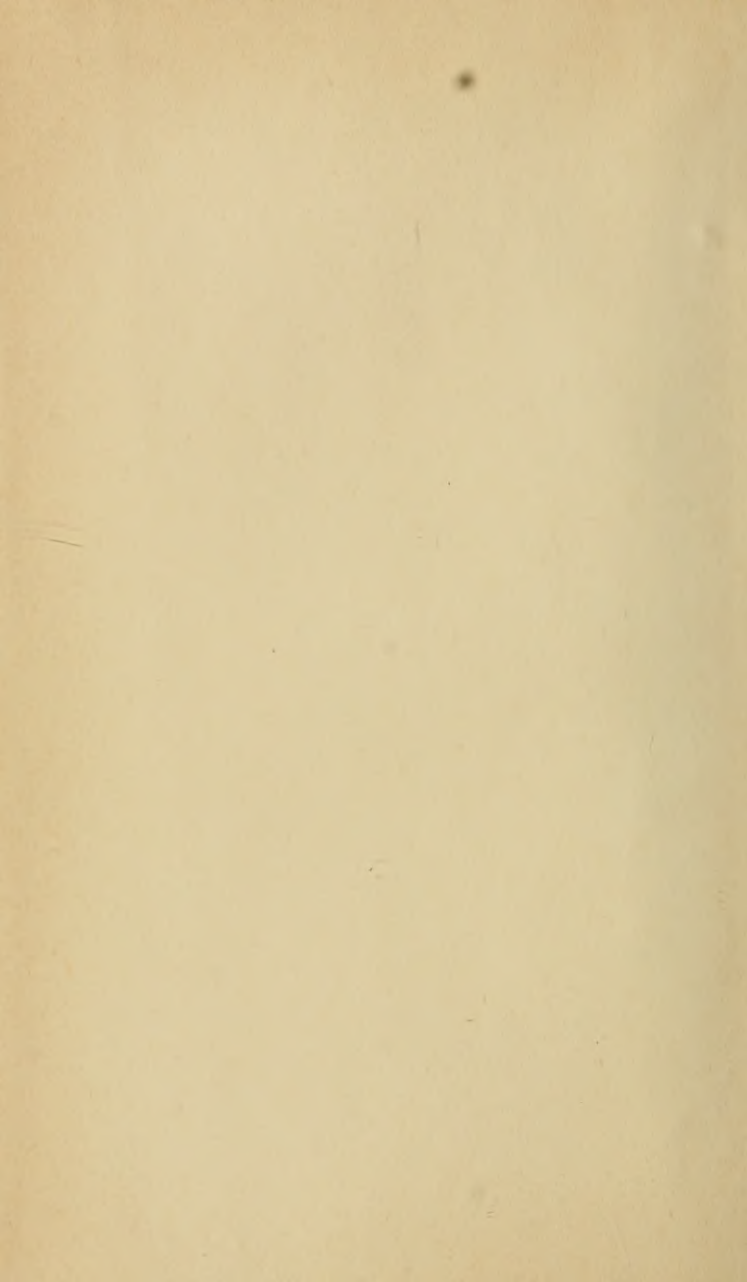
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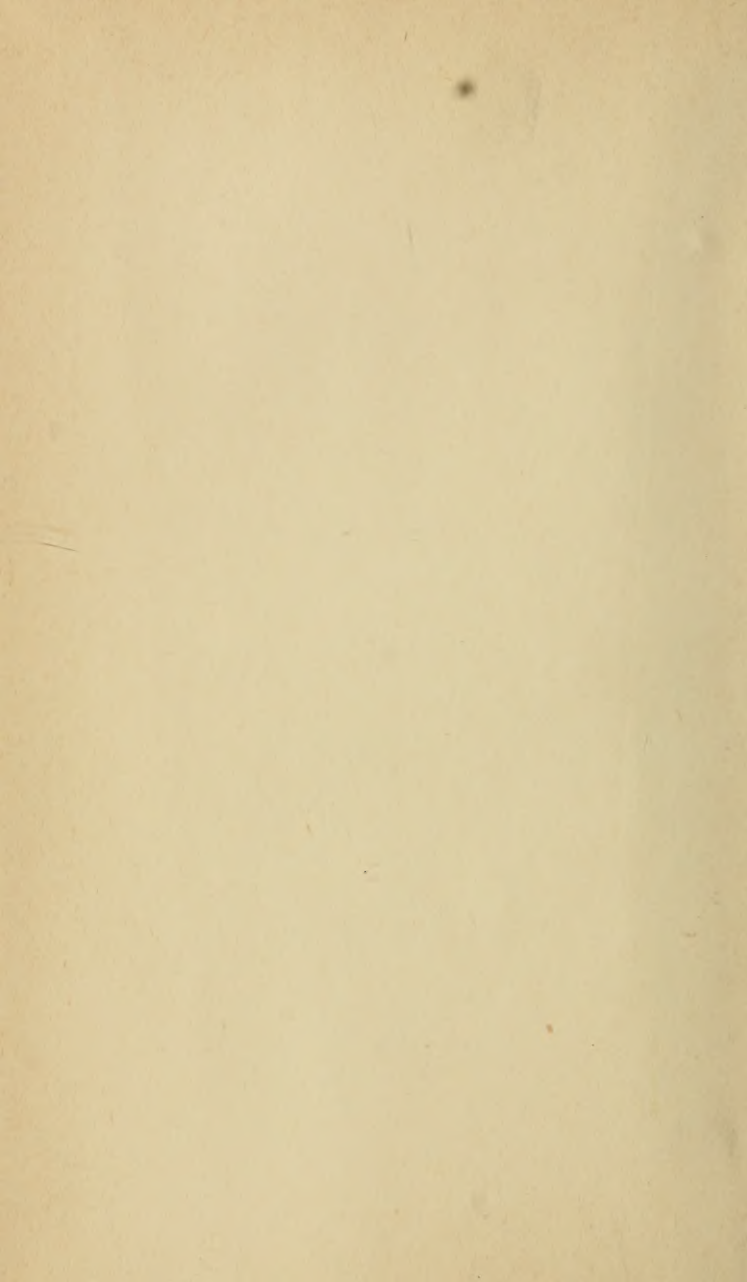
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ENGLISH BOTANY.



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ENGLISH BOTANY;

OR,

COLOURED FIGURES

OF

BRITISH PLANTS.

EDITED BY JOHN T. BOSWELL, F.L.S., ETC.

LATE LECTURER ON BOTANY AT WESTMINSTER HOSPITAL.

THE POPULAR PORTION BY MRS. LANKESTER,

AUTHOR OF "WILD FLOWERS WORTH NOTICE," "THE BRITISH FERNS," ETC.

THE FIGURES BY

J. SOWERBY, F.L.S., J. D^c C. SOWERBY, F.L.S., J. W. SALTER, A.L.S., F.G.S.

AND

JOHN EDWARD SOWERBY,

ILLUSTRATOR OF THE "FERNS OF GREAT BRITAIN," "GRASSES OF GREAT BRITAIN,"

"WILD FLOWERS WORTH NOTICE," ETC. ETC.

Third Edition,

ENLARGED, RE-ARRANGED ACCORDING TO THE NATURAL ORDERS,
AND ENTIRELY REVISED.

WITH DESCRIPTIONS OF ALL THE SPECIES BY THE EDITOR.

VOLUME VII.

LABIATÆ TO AMARANTACEÆ.

LONDON:

GEORGE BELL & SONS, YORK STREET, COVENT GARDEN;
DAVID BOGUE, ST. MARTIN'S PLACE.

1880.

LONDON:
PRINTED BY WILLIAM CLOWES AND SONS,
STAMFORD STREET AND CHARING CROSS.

ENGLISH BOTANY.

ORDER LIII.—LABIATÆ.

Herbs, undershrubs, or, more rarely, shrubs with the stem, or at least the branches, 4-sided. Leaves always opposite, generally fragrant, from containing essential oil; without stipules. Flowers perfect, irregular, generally in small subsessile cymes in the axils of the upper leaves or bracts; the flowers of these cymes apparently meeting round the stem and forming false whorls or *verticillasters*; sometimes forming a raceme or spike-like raceme; rarely only a single flower is produced in the axils of each bract or leaf, so that they are in pairs at each node. Calyx 5-toothed; the teeth sometimes so combined that it becomes bilabiate, and sometimes even with apparently only 2 teeth or lobes. Corolla hypogynous, tubular, with an irregular limb, usually bilabiate and ringent. Stamens 4, didynamous, more rarely 2, inserted in the tube of the corolla. Ovary of 2 carpels, each so deeply divided that the ovary is 4-celled and 4-lobed, with a single style coming from the centre of the 4 lobes, and consequently apparently from the base of the carpels; stigma more or less 2-lobed; ovules 4, 1 in each cell or lobe of the ovary. Fruit of 4 separate indehiscent cocci usually called *nucules*, each enclosing a single erect seed. Embryo almost always straight; albumen none, or in very small quantity and fleshy.

TRIBE I.—MENTHOIDEÆ.

Corolla funnel-shaped, scarcely bilabiate. Stamens 4, rarely 2, divergent, nearly equal; anthers 2-celled, cells contiguous.

GENUS 1.—LYCOPUS. *Linn.*

Calyx regular, 5-toothed, teeth flat. Corolla funnel-shaped, nearly regular, 4-lobed; upper lobe generally notched. Fertile stamens 2; the upper or inner pair sterile, or absent; anther-cells parallel, or ultimately divergent. Nucules truncate at the apex, surrounded by a corky border at the base.

Marsh or water herbs with toothed or pinnatifid leaves; those (*bracts*) from which verticillasters of flowers are produced, similar to the leaves. Flowers small, crowded, sessile, white or lilac.

The name of this genus of plants comes from the Greek words *λύκος* (*lukos*), a wolf and *πούς* (*pous*), a foot.

SPECIES I.—**LYCOPUS EUROPÆUS.** *Linn.*

PLATE MXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXCI. Fig. I.

Billot, Fl. Gall. et Germ. Exsicc. No. 1295.

Leaves shortly stalked, elliptical or ovate-elliptical, attenuated at each end, especially towards the apex, inciso-serrate, commonly pinnatifid or pinnatipartite at the base. Calyx teeth equal, linear-subulate. Fertile stamens 2, barren ones rudimentary, extremely small, or absent. Nucules about as long as the calyx-tube.

In wet places or in shallow water. Common, and generally distributed in England. Rare in Scotland, extending to Kincardineshire, where it occurs at Ury; and Ross-shire, where it is found near Strathpeffer. Frequent, but rather local, in Ireland.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock extensively creeping, emitting numerous stolons.* Stem erect, 1 to 3 feet high, solid, quadrangular, tough, with numerous opposite branches in the lower part, or, in small specimens, simple. Leaves subsessile, 2 to 6 inches long, the lower lobes generally connected only by an herbaceous strip. Bracts all foliaceous, the lower ones undistinguishable from the leaves, the uppermost smaller and less deeply cut, and with the basal segments not separated. Verticillasters many-flowered, dense, rather distant, occupying the upper third of the stem, and the whole of the upper branches. Flowers sessile, about $\frac{1}{8}$ inch long. Corolla a little longer than the calyx, blush-white, the lower lip broader than the others, and with a few purplish spots. Sterile stamens often undistinguishable. Nucules obovate, trigonously plano-convex, truncate at the apex, with a corky margin at the sides. Plant subglabrous or slightly pubescent, especially on the stem and veins of the leaves beneath, green, the stem and calyx teeth generally tinged with purple.

* This plant has been described as destitute of stolons, but this is certainly erroneous. Stolons are commonly abundantly produced; they are generally subterranean, and resemble those of the genus *Mentha*, but occasionally, as in the Mints, they appear above ground, and are furnished with small leaves.

Water Horehound, Gipsy Wort.

French, *Lycoper d'Europe*. German, *gemeiner Wolfstrapp*.

The juice of this plant yields a black dye, and is used occasionally to give a permanent colour to wool, silk, and linen. It is called Gipsy Wort, according to the old herbalists, because "those strolling cheats called gipsies do dye themselves of a blackish hue with the juice of this plant, the better to pass for Africans by their tanned looks and swarthy hides, to bubble the credulous and ignorant by the practice of magic and fortune-telling; they being, indeed, a suck of all nations, living by rapine, filching, pilfering, and imposture."

GENUS II.—**M E N T H A.*** *Linn.*

Calyx regular, 5-toothed, teeth flat. Corolla funnel-shaped, nearly regular or sub-bilabiate, 4-lobed; upper lobe generally notched. Stamen 4; nearly equal, diverging. Anther-cells parallel. Nucules rounded at the apex, not surrounded by a corky border at the base.

Aromatic herbs with dentate or entire leaves; those (*bracts*) from which verticillasters of flowers are produced, similar to the others, or much smaller. Flowers small, crowded, shortly stalked or subsessile, lilac or rose.

The name of this genus of plants appears to have been derived from the fable of the nymph Menthe, the daughter of Coeytus, a favourite of Pluto, whom Proserpine in jealous fury transformed into this little plant.

SUB-GENUS.—**EU-MENTHA.** *Gren. and Godr.*

Calyx nearly regular, naked at the throat.

GROUP I.—**MENTHÆ SPICATÆ.**

Whorls of flowers collected into cylindrical, conical, or ovoid spikes or heads; bracts minute.

* In this difficult genus I have, for the most part, adopted the views of Mr. Baker, as expressed in his paper on British Mints, published in Dr. Seemann's *Journal of Botany* for 1865, p. 233. I am also indebted to him for naming my large collection of *Mentæ* in accordance with this paper, and for numerous personal communications on the subject. Mr. John Hardy has most kindly lent me his set of specimens of mints collected by Sole.

SPECIES I.—**MENTHA ROTUNDIFOLIA.** *Linn.*

PLATE MXX.

Reich. Le. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXXXII.*Billot*, Fl. Gall. et Germ. Exsicc. No. 605. *Baker*, Journ. of Bot. 1865, p. 235.*M. sylvestris*, *Sole*, British Mints, p. 7, Pl. III.

Leaves sessile or subsessile, oval or ovate-oval, cordate, obtuse or sub-obtuse, crenate-serrate or serrate, rugose, from the veins being all impressed above and prominent beneath, sparingly hairy above, felted with short arachnoid wool beneath. Spikes conico-cylindrical, dense. Bracts ovate, acuminate; bracteoles lanceolate, acuminate, about as long as the flowers. Pedicels hairy. Calyx oblong-campanulate, bristly-hairy; teeth narrowly triangular, half as long as the tube. Corolla scarcely half as long again as the calyx, hairy without, glabrous within.

In damp places. Rather rare, and probably not native in many of its stations. It is certainly indigenous in the south of England; abundant on the south side of the Isle of Wight. In Scotland I have gathered it abundantly on the banks of the Esk above Musselburgh, but in the company of plants certainly not native. In Ireland it is widely distributed, and apparently truly wild in the south.

England, [Scotland,] Ireland. Perennial. Autumn.

Rootstock extensively creeping and stoloniferous, as in most of the species of this genus. Stem stout, erect or decumbent, 1 to 3 feet high, solid, quadrangular, much branched. Leaves 1 to 3 inches long, very broad, somewhat resembling those of sage, usually quite sessile, at least on the main stems. Spikes solitary at the extremities of the branches, and 3 to 5 often agglomerated at the extremity of the main stem; the primary one $1\frac{1}{2}$ to 3 inches long, continuous or interrupted at the base; the whole arranged in a panicle. Lowest bracts subfoliaceous, but much smaller than any of the leaves, the upper ones minute, not exceeding the open flowers. Pedicels short, bristly-hairy. Calyx teeth slightly unequal. Corolla $\frac{1}{4}$ inch long, white or pale blush. Stamens included or more commonly exerted, purplish. Nucules ovate-ovoid, thickly sprinkled with resinous dots. Plant dull green, leaves often whitish and arachnoid beneath, odour strong.

A form with the leaves variegated with white is common in gardens. This has the leaves less felted beneath, less rugose, and frequently more distinctly stalked, so that it forms a connecting link with the succeeding species, but it has the short calyx-teeth of *M. rotundifolia*.

Round-leaved Mint.

French, *Menthe à feuilles rondes*. German, *rundblättrige Minze*.

Dr. Withering tells us that Mr. Sole states this species to be the true *Menthastrum*

of the shops, and deduces that the monks, the physicians of their times, were well acquainted with its virtues, from its still being found about the ruins of monasteries and abbeys. He finds it "speedily cures chlorosis, and wonderfully refreshes the brain, removing the dull stupid languor subsequent to epileptic fits."

SPECIES II.—**MENTHA ALOPECUROIDES.** *Hull.*

PLATE MXXI.

M. sylvestris, var. 4, *alopecuroides*. *Baker*, Journ. Bot. 1865, p. 238.

M. sylvestris, var. 8. *Sm.* Eng. Fl. Vol. III. p. 73.

M. sylvestris, var. *velutina*, *Bab.* Man. Brit. Bot. ed. ii. p. 243.

M. rotundifolia, *Sole*, Brit. Mints, p. 9. Pl. IV.

M. rotundifolia, var. *velutina*, *Bab.* Man. Brit. Bot. ed. i. p. 228.

M. dulcissima, *Dum.* Fl. Belg. p. 48.

Leaves sessile or subsessile, broadly oval or roundish-ovate, subcordate, sub-obtuse, serrate, rugose, from the veins being all impressed above and prominent beneath, sparingly hairy above, more copiously so but not felted beneath. Spikes conico-cylindrical. Bracts lanceolate, acuminate; bracteoles lanceolate, acuminate, shorter than the flowers. Pedicels hairy. Calyx bristly-hairy, campanulate-oblong; teeth triangular-subulate as long as the tube. Corolla nearly twice as long as the calyx, hairy without, glabrous within.

In damp ground and waste places. Rare. *Sole* states that *Aiton* had it sent to him by a correspondent who found it both in Kent and Essex; it occurs in various stations in Norfolk. In Scotland it has been found near Brodick, Arran, and near Killin, Perthshire, but has little claim to be considered native in these Scotch localities.

England, [Scotland]. Perennial. Autumn.

This plant has much the habit of *M. rotundifolia*, but the leaves are larger, broader, more sharply and deeply serrate and not arachnoid-felted beneath; the bracts are narrower, being nearly the same shape as the bracteoles; the flowers are larger, blush-coloured, and the calyx teeth are much longer in proportion.

Mr. *Baker* and most British botanists place this plant with *M. sylvestris*, but it has the rugose leaves of *M. rotundifolia* as well as their general outline; the bracts, too, are conspicuously broader than in *M. sylvestris*. Mr. *Baker* says the bracteoles are similar to those of *M. sylvestris*, but his descriptions are taken from dried specimens, in which they may have shrivelled, and so become apparently narrower than they are in the recent plant. I have been favoured with recent specimens from Norwich from the Rev. Kirby Trimmer, and many years ago I had the plant in cultivation.

The only continental specimen I have seen is a Belgian one from Dr. *Thiélens* labelled *M. dulcissima*, *Dumortier*.

It is highly probable that *M. alopecuroides* is merely a sub-species of *M. sylvestris*, but we know too little about the *Menthae* to enable us satisfactorily to distribute them into super-species and sub-species, and are sadly in want of careful experiments on the extent of variation which takes place in mints raised from seed, and also whether hybridism takes place in this genus to any great extent, which is possible enough, as the flowers of most of the species are dimorphic, some individuals having long and others short stamens.

Broad-leaved Horse Mint.

SPECIES III.—**MENTHA SYLVESTRIS.** *Lin.*

PLATE MXXII.

Billot, Fl. Gall. et Germ. Exsicc. No. 606.

M. sylvestris, vars. 1, 2, and 3, *Baker*, Journ. Bot. 1865, p. 236.

Leaves subsessile, oblong-elliptical or -oval or -ovate, rounded or subcordate at the base, acute or sub-acute, serrate or crenate-serrate, not rugose, the ultimate anastomosing veins being only faintly impressed, sparingly hairy above, more or less densely so and sometimes felted beneath. Spikes conico-cylindrical, dense, rather slender. Bracts linear-lanceolate; bracteoles linear-subulate, usually longer than the flowers. Pedicels hairy. Calyx bristly-hairy, oblong-campanulate; teeth triangular-subulate, as long as the tube. Corolla nearly twice as long as the calyx, hairy without, glabrous within.

Var. α , *genuina*.

M. sylvestris, var. α . *Sm.* Engl. Fl. Vol. III. p. 73.

M. villosa prima. *Sole*, Brit. Mints, p. 3, Pl. I.

Leaves elliptical or oblong-elliptical, rounded at the base, acute, serrate, subglabrous or finely hairy above, or rather densely felted-hairy and white beneath. Spikes slender.

Var. β , *nemorosa*. *Benth.*

M. nemorosa, *Willd.* Sp. Plants, Vol. III. p. 75.

M. sylvestris, var. β . *Sm.* Eng. Fl. Vol. III. p. 73.

M. villosa secunda, *Sole*, Brit. Mints, p. 5, Pl. II.

Leaves oblong-ovate, rounded at the base, acute, coarsely serrate, subglabrous or sparingly hairy above, rather densely so, but not white beneath. Spikes thicker than in var. α .

Var. γ , *mollissima*. *Benth.*

"*M. mollissima* Borkh." *Benth.* in *D.C.* Prod. Vol. XII. p. 166.

Leaves oblong-oval or -ovate, generally subcordate at the base, sub-

acute, finely serrate, hoary pubescent above, densely felted-hairy and white beneath. Spikes short and thick.

In damp and waste places. Rather rare, but widely distributed; var. β apparently the most frequent form; var. γ rare: at Acle, Norfolk; Allanton, Berwickshire; and Sidlaw Hills, Forfarshire.

England, Scotland, Ireland (?). Perennial. Autumn.

A variable plant, with the stem 2 to 3 feet high, more or less covered with white wool, much less branched than in *M. rotundifolia* and *M. alopecuroides*. Leaves varying in breadth, $1\frac{1}{2}$ to 3 inches long. Spikes paniced, seldom aggregated at the apex of the stem, except in var. *mollissima*. Flowers larger than in *M. rotundifolia*, pale lilac; bracts and calyx teeth much longer. The leaves are not rugose, as in the two preceding species, and are generally whiter beneath, and with shorter and stiffer pubescence than in *M. alopecuroides*.

Common Horse Mint.

French, *Menthe sauvage*. German, *Waldminze*.

This species possesses somewhat of the odour of the genus which, in olden times, was so much esteemed as a perfume. Our modern tastes are not so partial to these rustic perfumes as were those of our forefathers. We read in Browne's "Pastorals" of a friend being told

"To convey him from his room
To a field of yellow broom,
Or into the meadows, where
Mint perfumes the gentle air."

The generic term *Mint* seemed, with the older writers, to include many sweet-scented plants, especially such as we now find in the culinary department of a herb garden. We recall the lines:—

"Here's flowers for you;
Hot lavender, *mints*, savory, marjoram,
The marigold that goes to bed with the sun,
And with him rises weeping: these are flowers
Of middle summer."

SPECIES IV.—*MENTHA VIRIDIS*. *Linn.*

PLATE MXXIII.

Baker, Journ. Bot. 1865, p. 239. *Sole*, Brit. Mints, p. 2, Pl. V.

M. sylvestris, var. δ , glabra. *Koch*, Syn. Fl. Germ. et Helv. Vol. II. p. 633.

Leaves subsessile, oblong-elliptical or elliptical-lanceolate, rounded or subcordate at the base, acute, sharply serrate, not rugose, the ultimate anastomosing veins being only slightly impressed, glabrous above and below, or with hairs only on the midrib and principal veins beneath.

Spikes conico-cylindrical, rather dense and slender. Bracts linear lanceolate; bracteoles linear-subulate, about as long as the flowers. Pedicels glabrous. Calyx subglabrous, campanulate-oblong; teeth triangular-subulate, as long as the tube, ciliated or bristly-hairy. Corolla twice as long as the calyx, glabrous without and within.

In wet places. Rather rare, and very doubtfully native in most of its stations, but Mr. Baker believes it to be "a true native in some of its stations in the north of England."

England, [Scotland, Ireland]. Perennial. Autumn.

M. viridis is probably a sub-species of *M. sylvestris*, from the longer-leaved forms of which it is distinguishable only by its being glabrous and of a brighter green colour, and by having a more pungent scent. In Britain, indeed, *M. viridis* is distinctly separated by these characters from *M. sylvestris*, but on the Continent there are intermediate forms, which, unless they can be shown to be hybrids, forbid the conclusion that the two are distinct as ver-species.

A form with the leaves slightly crisped is common in gardens, and has been found at Glenfarg, Perthshire, by Dr. Walker Arnott, and near Bullow Pill, Gloucestershire, by Dr. St. Brody, and was also gathered in Essex by Dale.

Spear Mint.

French, *Menthe cultivée*. German, *Waldminze*.

This plant is well known, even to those who have never found it wild or in a garden. As an accompaniment to lamb and green peas, it is associated with our ideas of pleasant spring and summer repasts, and is peculiarly refreshing and pleasant to most people. Besides its familiar household applications, the spear mint is still valued in medicine, though chiefly used to flavour other substances. We find, in the latest edition of our British Pharmacopœia, "*Oleum Menthe Viridis*, Oil of Spear-mint, distilled in England from the fresh herb when in flower." This oil is of a pale yellow tint, which deepens by keeping, and possesses something of the smell and taste of the fresh herb: 500 lbs. of the plant are required to yield 1 lb. of oil. It grows very easily in tolerable soil, and large quantities are cultivated near London for sale to the chemist, as well as for culinary purposes.

We are told that Mint was in great request among the Romans, especially those of the lower classes, and Pliny mentions that they put it very generally into their cookery. Gerarde renders what he says of it as "The smell of mint doth stir up the minde and the taste to a greedy desire of meate." It was used by these ancient rusties to rub on their tables before eating, and was considered to be not only an appetiser, but a purifier. Ovid represents the hospitable Baucis and Philemon as scouring their board with green mint before laying upon it the food intended for their divine guests. The ancients had a notion that mint would prevent the coagulation of milk and its acid fermentation. "It will not suffer milk to cruddle in the stomach," says Gerarde, quoting Pliny, "and therefore it is put in milk that is drunke, lest those that drinke thereof should be strangled." That diligent and credulous collector of Roman facts and superstitions tells us that mint is not only an unfailing remedy for many disorders,

but is especially beneficial to splenetic people, whom he recommends to taste it in the garden for nine successive days without picking it, taking care to say at the same time that they do it for the good of their spleen. We incline to believe in the daily walk in the garden rather than in the mint as a cure. The notion that mint will prevent the coagulation of milk is favoured by Dr. Withering, as having some foundation in fact; for he says, when cows eat *Mentha arvensis* in summer, as they are apt to do when grass is scanty, their milk can hardly be made into cheese; and Lewis says, that milk in which mint-leaves were put to macerate did not coagulate nearly so soon as an equal quantity of the same milk kept by itself. It is said that mice are so averse to the smell of mint, either fresh or dried, that they will desist from their depredations on grain, cheese, or other stores where it is scattered.

SPECIES V.—**MENTHA PIPERITA.** *Huds.*

PLATES MXXIV. MXXV.

Baker, Journ. Bot. 1865, p. 240.

Leaves shortly but distinctly stalked, oblong-elliptical or oblong-lanceolate or elliptical-ovate, rounded or wedge-shaped at the base, acute, serrate, glabrous above and below, or hairy only on the principal veins and midrib beneath. Spikes oblong-conical or oblong-ovoid, rather dense, thick. Bracts lanceolate; bracteoles linear-lanceolate, acuminate, about as long as the flowers. Pedicels glabrous. Calyx subglabrous, oblong-campanulate; teeth triangular-subulate, half as long as the tube, ciliated. Corolla twice as long as the calyx, glabrous without and within.

Var. *α. officinalis*, *Sole*.

PLATE MXXIV.

Baker, l. c. p. 240. *Sole*, Brit. Mints, p. 15, Pl. VII.

M. officinalis, *Hull*, Brit. Fl. ed. i. p. 127.

Leaves oblong-elliptical or oblong-lanceolate, rounded or attenuated at the base. Spikes elongated, of numerous verticillasters.

Var. *β. vulgaris*, *Sole*.

PLATE MXXV.

Baker, l. c. p. 241.

Sole, Brit. Mints, p. 19, Pl. VIII.

Leaves ovate or oblong-ovate, abruptly rounded or even subcordate at the base. Spikes capitate, of few verticillasters.

Var. *α* in damp places not unfrequent, but doubtless often escaped from cultivation. Var. *β*. I have never seen in cultivation: it is common about Thirsk, in Yorkshire; near Bath, Wells, and Glastonbury, Somerset; and has occurred in Essex and Surrey. One of the forms occurs in Ireland, but is said to be doubtfully native.

England, [Scotland, Ireland]. Perennial. Autumn.

The peppermint is easily distinguishable from all the preceding mints by its stalked leaves. In shape those of var. *α*. resemble those of *M. viridis*, but they are darker and duller green, with the sides less parallel; the spikes are always much shorter, thicker, and blunter, the pedicels and calyx more often tinged with purple; the calyx teeth shorter in proportion; the corolla of a redder and paler purple.

Var. *β*. approaches *M. citrata* or *aquatica* in the form of the leaves and the capitate arrangement of the spike, and might have been considered as more than a mere variety, but for the occurrence of a plant found by Smith at the corner of Saham Mere, near Wotton, Norfolk, which has the broad leaves of var. *β*. in combination with the elongated spikes of var. *α*; and Mr. T. R. Archer Briggs has sent me from Cornwall a form with the narrow leaves of var. *α* and the capitate spikes of var. *β*. I am indebted to Mr. W. Foggit, of Thirsk, for fresh specimens of var. *β*. which I have never gathered myself.

Peppermint.

French, *Menthe Poivrée*. German, *Pfefferminze*.

Two species of mint were used by the ancient Greek physicians, which were called ἡθύσμος ἡμερος, or μίνθη and καλαμίνθη. But some writers doubt whether either of these was the modern peppermint. It came into general use in the medicine of western Europe only about the middle of the last century, and in the first instance in England. All parts of the herb abound in a strong-smelling essential oil, which, when applied to the tongue, has a hot aromatic taste at first, and afterwards produces a sensation of coldness in the mouth. Both in its fresh and dried state the herb yields its properties by distillation to water and to spirit. In this way are obtained the Aqua, Spiritus, and Oleum Menthæ of the Pharmacopœia. Fresh leaves yield the largest quantity and best quality of these preparations, though the dried leaves are often used for convenience. Peppermint contains a little tannin, as its infusion becomes dark green with the salts of sesquichloride of iron, but its volatile oil is its chief characteristic. Its chief use in medicine is to cover the disagreeable flavours of other remedies; it is also a mild stimulant and anti-spasmodic, and is largely used in the treatment of gastric diseases. The cultivation of Peppermint forms an extensive business in some parts of England, America, and on the Continent. At Mitcham, near London, there are large fields of it grown. It requires a moderately rich soil, and the quality of the oil is best when it grows in dry ground. When required for distillation, the crop should be allowed to stand until the heads are coming into flower, and then be cut down immediately. On an average, 7 lbs. of oil are extracted from 1 ton of the herb. Much of the oil is consumed by confectioners in making peppermint lozenges and sweetmeats.

SPECIES VI. — **MENTHA PUBESCENS.** Willd.

PLATES MXXVI. MXXVII.

Baker, Journ. Bot. 1865, p. 242.

M. nepetoides *Lej. Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 633.

Leaves shortly but distinctly stalked, oblong-elliptical, oblong-lance-

ovate, or elliptical-ovate, acute or subacute, serrate, pubescent above and densely so or woolly beneath. Spikes oblong-cylindrical or cylindrical, rather dense, thick. Bracts narrowly lanceolate; bracteoles linear-subulate, shorter than the flowers. Pedicels hairy. Calyx bristly-hairy, campanulate-cylindrical; teeth subulate, two-thirds the length of the tube. Corolla twice as long as the calyx, hairy without and within.

Var. *α. genuina*.

PLATE MXXVI.

M. palustris, *Sole*, Brit. Mints, p. 13, Pl. VI.

M. hirsuta, var. *δ. Sm.* Engl. Fl. Vol. III. p. 79.

M. aquatica, var. *ε. Benth.* in *D.C. Prod.* Vol. XII. p. 170.

Leaves ovate or oval-ovate, subobtuse, dull green and thickly hairy above, densely so and woolly on the veins beneath.

Var. *β. hircina*.

PLATE MXXVII.

M. hircina, *Hull*, Brit. Fl. ed. i. p. 127.

M. piperita, var. *sylvestris. Sole*, Brit. Mints, p. 53, Pl. XXIV.

M. piperita, var. *γ. Sm.* Engl. Fl. Vol. III. p. 7.

Leaves oblong-elliptical or ovate-oblong, green and subglabrous above, hairy beneath, especially on the veins.

Var. *α.* orchard at Trezoddarn, Cornwall; Glastonbury, and other places in Somerset; formerly in Surrey and Middlesex, but now extinct in these counties; Waterford Marsh, near Hertford; Wrexham, Denbighshire; Saham and Earlham, Norfolk. Var. *β.* at Lyncombe, near Bath, where it was found by *Sole*; and near Bocking in Essex, where it was gathered by *Dale*.

England. Perennial. Autumn.

This is a very puzzling plant, having the general habit of *M. sylvestris* or *piperita*, with the spikes more cylindrical and blunter than in the former or in var. *α.* of the latter species, and the leaves approaching in shape those of *M. hirsuta*. It appears to be of rare occurrence, as the only specimen I possess is one from near Wrexham, collected by the late Mr. J. E. Bowman, but it is not improbable that it may have been passed over as one of the commoner forms.

Blunt-spiked Mint.

French, *Menthe pubescente*.

MONSTROSITY.—**MENTHA CRISPA.** *Lin.*

PLATE MXXVIII.

Baker, Journ. Bot. 1865, p. 240.

M. piperita, var. *crispa*, *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 634.

M. aquatica, var. *crispa*, *Benth.* in *D.C.* Prod. p. 170. *Bab.* Man. Brit. Bot. p. 254.

Hook. & *Arn.* Brit. Fl. ed. viii. p. 324.

Leaves subsessile, or the lower ones shortly stalked, ovate or triangular-ovate, subacute, laciniate and crisped at the margins, finely pubescent above, more thickly so or woolly beneath. Spikes cylindrical-oblong, rather dense, thick. Bracts lanceolate; bracteoles linear-subulate, as long as the flowers. Pedicels glabrous. Calyx sparingly bristly-hairy, obconical-campanulate; teeth triangular-subulate, nearly as long as the tube. Corolla twice as long as the calyx, very slightly hairy without, glabrous within.

On the banks of the Wooler Water, near Haugh Head, and on the banks of a rivulet leading from the same water above Longley Ford, Northumberland.

[England.] Perennial. Autumn.

There can be no doubt that this mint is a monstrosity, but it seems hopeless to discover to which species it ought to be referred. Such writers as Wirtgen and Baker, who have more especially studied the mints, incline to the supposition that it is a form of *M. piperita*, from which, however, it differs remarkably in the suppression of the petioles of the leaves, which latter are also much more hairy: the calyx also differs in being more hairy, the tube more narrowed towards the base, and the teeth much longer in proportion. It is more hairy than *M. citrata*, to which it is referred by Boreau, and less so than *M. hirsuta*, and from both these latter forms it differs in the subsessile leaves and spiked, not capitate, inflorescence. From the crisped variety of *M. viridis* it differs in the leaves being more distinctly stalked, the spikes much shorter and blunter, and the corolla having a few hairs on the outside. From *M. pubescens* it is separated by the subsessile leaves, longer calyx-teeth, and more fragrant scent.

*Curled Mint.*SPECIES VII.—**MENTHA CITRATA.** *Elch.*

PLATE MXXIX.

Baker, Journ. Bot. 1865, p. 244. *Sm.* Eng. Fl. Vol. III. p. 78.

M. odorata, *Sole*, Brit. Mints, p. 21.—Pl. IX. *Sm.* E. B. ed. i. No. 1025.

M. aquatica, var. *glabrata*, *Benth.* in *D.C.* Prod. Vol. XII. p. 171. *Bab.* Man. Brit.

Bot. ed. v. p. 254. *Hook.* & *Arn.* Brit. Fl. ed. viii. p. 324. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 634.

Leaves conspicuously stalked, ovate, abrupt or subcordate at the

base, subacute, sharply serrate, glabrous above and beneath. Flowers in a subglobular terminal head, with or without one or two verticillasters beneath it. Bracts of the head lanceolate; of the lower whorls, when present, similar to the leaves; bracteoles strap-shaped-subulate, shorter than the flowers. Pedicels glabrous. Calyx glabrous, campanulate-cylindrical; teeth triangular, abruptly acuminate into long subulate points, two-thirds the length of the tube, glabrous. Corolla twice as long as the calyx, glabrous without and within. Nucules "smooth." (*Baker*.)

In wet places very rare. In a wet ditch at Barton-under-Needwood, Staffordshire, Rev. Kirby Trimmer. In a ditch near Bedford, Rev. Dr. Abbot. Sole found it in a small brook or ditch near Capel-Carey, between Llanrwst and Llanberis, North Wales, and says that it was found by Mrs. Wahnsley by river-sides and brooks in Cheshire, particularly in the neighbourhood of Aston House.

England. Perennial. Autumn.

Rootstock extensively creeping, and generally producing numerous stolons above ground, with small leaves. Stems about 2 feet high, much branched, the branches spreading. Lamina of the leaves 1 to 2 inches long, longer than the petiole. Flowers in a roundish terminal head, with 1 or 2 verticillasters beneath it in the axils of bracts undistinguishable from the leaves. Calyx of a purple colour, on which lines of yellow dots (glands) are very conspicuous. Corolla $\frac{1}{4}$ inch long, reddish-lilac, with the stamens apparently always included, and the style protruded. Plant glabrous, dotted with yellow glands, dark green, generally tinged with purple. Odour very aromatic, resembling that of the Bergamot Orange or that of the Oswego Tea (*Monarda didyma*).

No doubt this is merely sub-specifically distinct from *M. hirsuta*; but, as I have been unable to follow out the grouping of the mints into super-species, it would be undesirable to do so in some cases and not in others.

SPECIES VIII.—*MENTHA HIRSUTA*. *Linu.*

PLATE MXXX.

Baker, Journ. Bot. 1865, p. 243.

M. hirsuta, vars. α and β , *Sm.* Eng. Fl. Vol. III. p. 79.

M. aquatica, minor and major, *Sole*, Brit. Mints, pp. 23—25. Pls. X. and XI.

M. aquatica, vars. α and β , *Benth.* in *D.C.* Prod. Vol. XII. p. 170. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 634. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 651.

M. aquatica, var. α , *Bab. Man.* Brit. Bot. p. 254. *Hook. & Arn.* Brit. Fl. ed. viii. p. 324.

Leaves conspicuously stalked, ovate or oval-ovate, rounded or abrupt or subcordate at the base, subacute, serrate or crenate-serrate,

generally hairy on both sides, very rarely glabrous with only the principal veins and margins hairy. Flowers in a subglobular terminal head or short ovoid spike, with or without one or two verticillasters beneath it. Bracts of the head lanceolate; of the lower whorls, when present, leaflike; bracteoles strapshaped-subulate, shorter than the flowers. Pedicels hairy. Calyx hairy, campanulate-cylindrical; teeth triangular, acuminate, half the length of the tube, bristly-hairy. Corolla twice as long as the calyx, hairy without and within. Nucules rough with small points.

Var. α , *genuina*.

Leaves more or less hairy, at least beneath.

Var. β , *subglabra*, Baker.

Leaves glabrous, except on the principal veins beneath. Verticillasters more numerous and more remote than in var. α .

In wet places very common, and generally distributed over the whole of the three kingdoms. Var. β I have collected only at Weybridge, Surrey.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Stems 6 inches to 5 feet high. Leaves variable in breadth, the lamina $\frac{3}{4}$ to 2 inches long. Lowest whorl often remote from the other, and with the cymes stalked. Corolla large, reddish purple, with the stamens included and the styles exserted, and vice versa.

Var. β comes very near *M. citrata*, but the veins of the leaves, the pedicels, and calyx are pubescent, and the calyx teeth are considerably shorter in proportion; which last is, indeed, the only positive character that can be adduced as a reason for not regarding *M. citrata* as a glabrous variety of *M. hirsuta*.

Mr. Baker considers that my specimen of var. β from Weybridge is the plant called *M. odorata* by Reichenbach and Boreau. *M. odorata* of Sole is, as previously mentioned, a synonym of *M. citrata*.

Hairy Water Mint.

SECTION II.—*MENTHÆ VERTICELLATÆ.*

Whorls of flowers separated, not all collected into spikes or heads; verticillasters, or at least the lower ones, with large bracts undistinguishable from the leaves.

SPECIES IX.—*MENTHA SATIVA*. *Lin.*

PLATES MXXXI. MXXXII.

Baker, Journ. Bot. 1865, p. 247.*M. arvensis*, var. *sativa*, *Benth.* in *D.C.* Prod. Vol. XII. p. 171.*M. hirsuta*, var. ϵ , ζ , η , τ , and *M. acutifolia*, *Sm.* Eng. Fl. Vol. III. pp. 79 to 81.*M. rivalis* and *M. paludosa*, *Sole*, Brit. Mints, pp. 45 and 49. Pl. XX. and XXII.*M. aquatica*, var. δ , ϵ , and ζ , *Fries*, Nov. Fl. Succ. ed. ii. pp. 183 and 184.

Leaves conspicuously stalked, ovate or oval-ovate or oval, rounded or wedge-shaped at the base, subacute or acute, serrate or crenate-serrate, more or less hairy on both sides. Flowers in whorls which are usually all separate, often beginning about or even below the middle of the stem. Bracts large, similar to the leaves, or sometimes the upper ones minute, uppermost ones often without flowers; bracteoles strap-shaped-subulate, hairy, shorter than the flowers. Pedicels hairy, rarely glabrous. Calyx hairy, campanulate-cylindrical; teeth triangular, acuminate, half the length of the tube, bristly-hairy. Corolla scarcely twice as long as the calyx, hairy without and within. Nucules rough with small points.

Var. α , *genuina*.

PLATE MXXXI.

M. rivalis, var. β , γ , and δ , *Sole*, l. c. p. 45.

Whorls all separate. Bracts all leaflike, the upper ones sometimes without flowers. Plant hairy.

Var. β , *paludosa*.

PLATE MXXXII.

M. paludosa, *Sole*, l. c. p. 49.*M. subspicata*, "*Weile*;" *Borcan* Fl. de cent. de la Fr. ed. iii. Vol. II. p. 508.

Upper whorls collected into a spike with the bracts smaller, those of the uppermost verticillasters minute. Plant hairy.

Var. γ , *subglabra*, *Baker*.*M. rivalis*, var. α , *Sole*, l. c. p. 49.

Whorls all separate. Bracts all leaflike. Plant subglabrous. Corolla larger than in vars. α and β .

In wet places. Common and generally distributed in England. Rather rare in Scotland, extending north to Kincardineshire and Argyshire. Rather rare in Ireland, especially in the north. Var β appears to be the least common of the forms, and has been noticed only in England.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

This plant is exceedingly near to *M. hirsuta*, the only difference being the separation of the whorls of flowers, and var. β presents an intermediate state, which appears to connect them. It varies much in size and in the degree of hairiness. The stem is rarely more than 2 to 3 feet high, much branched when luxuriant, and often more or less decumbent. The flowers, except in var. γ , are smaller and more purple than in *M. hirsuta*.

M. acutifolia, *Sm.* E. B. 2415, is considered as a form of var. α by Mr. Baker; it was found on the banks of the Medway by Rand.

Marsh Whorled Mint.

French, *Menthe cultivée*. German, *Edelminze*.

SPECIES X.—**MENTHA RUBRA.** *Sm.*

PLATE MXXXIII.

Baker, Journ. Bot. 1865, p. 248.

M. arvensis, var. *rubra*, *Benth.* in *D.C.* Prod. Vol. XII. p. 172.

M. sativa, var. β , *rubra*, *Bab. Man.* Brit. Bot. ed. v. p. 254. *Hook. & Arn.* Brit. Fl. p. 325.

M. sativa, β , *glabra*, *Koch*, Syn. ed. ii. p. 634. *Sole*, Brit. Mints, l. c. p. 47, p. 24.

M. sativa, *Fries*, Nov. Fl. Suec. ed. ii. p. 184.

Leaves conspicuously stalked, ovate or ovate-oval or oval, rounded at the base, subacute, serrate or crenate-serrate, subglabrous or rarely sparingly hairy on both sides, hairy on the veins beneath. Flowers in whorls which are all separate, usually beginning about the middle of the stem. Bracts all similar to the leaves, the upper ones smaller, the uppermost ones often without flowers; bracteoles strapshaped-subulate, ciliated, shorter than the flowers. Pedicels glabrous. Calyx glabrous or subglabrous at the base, cylindrical-campanulate; teeth triangular, acuminate into subulate points, two-thirds the length of the tube, hairy and ciliated. Corolla twice as long as the calyx, glabrous without and within.

In wet places. Sparingly but generally distributed throughout England. Apparently rare in Scotland, where I have gathered it only on the banks of the Esk above Musselburgh. Rare in Ireland, but noticed in the extreme south, and also in the north of that island.

England, Scotland, Ireland. Perennial. Autumn.

M. rubra comes extremely near the var. *subglabra* of the preceding species, but it is a larger plant, the stem sometimes attaining 4 or 5 feet, and more flexuous; the flowers are larger, more conspicuous and redder;

the stem and veins of the leaves are generally tinged with purple; the whole plant is more glabrous; the pedicels, base of the calyx, and corolla usually perfectly so, though there are sometimes a few hairs about the top of the pedicel, and occasionally a few on the expanding corolla.

Mr. Baker states that Mr. T. B. Flower has sent from Gloucestershire a plant bearing the same relation to the ordinary form that the var. *paludosa* does to the normal *M. sativa*.

Mr. Baker refers to *M. rubra*, a plant collected by Dr. Windsor, at Partington, Cheshire. This has the veins of the leaves, bracteoles, and calyx teeth densely clothed with white woolly hairs. I have not seen the corolla of this plant, so I do not know if it does not also partake of the increased hairiness. It appears to me to be *M. gentilis*, var. γ .

Tall Red Mint.

French, *Menthe rouge*.

SPECTES XI.—**MENTHA GRACILIS.** *Sm.*

PLATES MXXXIV. MXXXV.

M. Cardiaca, *Baker*, Journ. Bot. 1865, p. 245.

M. pratensis, *Benth.* in *D.C.* Prod. Vol. VII. p. 168. *Hook. & Arn.* Brit. Fl. ed. viii. p. 325. *Bab. Man.* Brit. Bot. ed. v. p. 254. (non *Sole*).

Leaves spreading, subsessile or the lower ones shortly stalked, elliptical or lanceolate-elliptical, attenuated at each end, acute, remotely serrate, with few and distant lateral veins, subglabrous or thinly hairy above, glabrous beneath, except on the veins. Flowers in whorls which are all separate, beginning above the middle of the stem. Bracts similar to the leaves, but smaller and more lanceolate, the uppermost ones sometimes without flowers; bracteoles strapshaped, acuminate, ciliated, as long as or longer than the flowers. Pedicels glabrous. Calyx glabrous at the base, cylindrical-campanulate; teeth triangular, scarcely half as long as the tube, sparingly hairy and ciliated. Corolla half as long again as the calyx, glabrous without and within.

Var. α , *genuina*.

PLATE MXXXIV.

M. gracilis, *Sole*, Brit. Mints, p. 37, Pl. XVI.

M. gracilis, var. α . *Sm.* Engl. Fl. Vol. III. p. 84.

M. Cardiaca, var. 2, *Baker*, l. c. p. 24.

Stem slender, hairy below. Leaves sub-rhomboidal-elliptical, clothed with minute distant hairs above, glabrous below, except on the veins. Lower bracts five or six times the length of the whorls, subpetiolate. Whorls rather remote.

Var. β , *Cardiaca*.

PLATE MXXXV.

M. Cardiaca, var. 1. *Baker*, l. c. p. 245.*M. gracilis*, var. γ . *Sm. Engl. Fl. Vol. III.* p. 84.*M. gentilis*, *Sole*, *Brit. Mints*, p. 35, Pl. XV. (non *Lin.*) *Sm. E. B. ed. i.* No. 449.*M. rubra*, *Fries*, *Nov. Fl. Succ. ed. ii.* p. 179.

Stem rather stout, subglabrous. Leaves rhomboidal- or lanceolate-elliptical or ovate-elliptical, nearly glabrous, except on the veins. Bracts two to four times the length of the whorls, subsessile. Whorls rather crowded.

In wet places. Rare. Var. α appears to have been found only by *Sole*, in 1772, by the side of a brook, near Bradford, Wilts; var. β has been seen by Mr. *Baker* from the banks of the Tyne, near Newcastle, Durham (Winch); Woodstock, Oxfordshire (*H. Boswell*); Waterford Marsh, near Hertford (*Ansell*); banks of the Lea, near Walthamstow, Middlesex (*T. F. Forster*). There are specimens in *Smith's Herbarium*, from a wet common before the blacksmith's shop at Langham, Norfolk. I have specimens collected by the *Rev. W. H. Purchas* at Smoile, near Ashby de la Zouch, Leicestershire, where, however, it has merely escaped from cultivation, as is probably also the case in most of the other stations.

England. Perennial. Early Autumn.

Of var. α the only specimen I have seen is that in the set of *Sole's* mints in the possession of Mr. *John Hardy*, of Hulme, Manchester. This is a slender plant, with few and distant branches; the stems rather wiry and flexuous, the lowest part with crisped hairs. Leaves 2 to 2½ inches long, thinly sprinkled above with minute slender hairs. Bracts long, narrower in proportion to their length than the leaves. Lowest whorls more than 1 inch distant. Calyx teeth ciliated with long white hairs. Verticillasters rather large, lax.

Var. β is a plant often cultivated in gardens, with a strong smell of basil. It is a stouter plant than var. α , 1½ to 2½ feet high, branched, with the branches more upright than in the other, the leaves more attenuated towards the apex, the bracts much shorter in proportion to the verticillasters, which are in much closer proximity than in var. α . It is intermediate between *M. viridis* and *M. rubra*.

Cardiac Mint.

SPECIES XII.—*MENTHA PRATENSIS*. *Sole*.

PLATE MXXXVI.

Sole, *Brit. Mints*, p. 39, Pl. XVII.*M. gentilis*, var. 4. *Baker*, *Journ. Bot.* 1866, p. 251.*M. gracilis*, var. β . *Sm. Engl. Fl. Vol. III.* p. 84.

Leaves drooping, subsessile or the lower ones shortly stalked, ellip-

tical-oblong, rounded at both ends, subobtusely, closely and evenly serrate, with numerous approximate lateral veins, finely hairy above, glabrous beneath, except on the veins, which are closely hairy. Flowers in whorls, which are all separate, but confined to the upper part of the stem. Bracts similar to the leaves, subpetiolate, ovate, subacute, the uppermost ones sometimes without flowers; bracteoles strap-shaped, blunt, finely ciliated, shorter than the flowers. Pedicels glabrous. Calyx glabrous at the base, oblong-campanulate; teeth triangular, one-third the length of the tube, finely ciliated on the margins and midribs. Corolla half as long again as the calyx, glabrous without and within.

This plant appears to have been found only by Sole in the year 1789. "In wet places in the New Forest, Hants, particularly in a common (Alderbury Common) near the Roebuck, between Salisbury and Romsey. It has not varied in the least under cultivation."

England. Perennial. Early Autumn.

Of this plant the only specimen I have seen is that in the set of Sole's specimens of mints in Mr. Hardy's possession. It appears to me quite distinct from any other of the British forms, and I have seen no foreign ones resembling it. It evidently stands in the same relation to *M. piperita* that *M. gracilis* does to *M. viridis*. Sole says it has a strong smell of peppermint. It is distinguishable from *M. gracilis*, which it resembles in its sessile leaves, by the veins being 8 or 9 in number on each side of the midrib, while in longer leaves of *M. gracilis* they are only 5 or 6: the leaves are also blunt, and are said by Sole to hang down when the plant is growing; the calyx is broader at the base, resembling that of *M. gentilis*, to which plant, however, I can see no other resemblance. Sole says it grows from 2 to 3 feet high, with its stalk upright and branched only towards the top, that the flowers resemble those of penny-royal, and that the leaves are harsh and wrinkled.

Meadow Mint.

SPECIES XIII.—**MENTHA GENTILIS.** *Lin.*

PLATE MXXXVII.

M. gentilis, vars. 1, 2, and 3, *Baker*, Journ. Bot. 1865, p. 252.

M. rubra, *Sole*, Brit. Mints, p. 41. Pl. XVIII.

M. arvensis, var. ζ, *Benth.* in *D.C. Prod.* Vol. XII. p. 172.

M. arvensis, var. γ, *Hook. & Arn.* Brit. Fl. ed. viii. p. 325.

M. sativa, γ, *Bab. Man.* Brit. Bot. ed. v. p. 254.

Leaves spreading, shortly stalked, ovate, rounded at the base, tapering and acuminate towards the apex, acute or subacute, serrate, with few and distant lateral veins, thinly hairy all over the surface

above, glabrous beneath except on the veins. Flowers in whorls which are all separate, beginning about the middle of the stem. Bracts similar to the leaves, and very little smaller, the uppermost ones without flowers; bracteoles lanceolate, acute, ciliated, shorter than the flowers. Pedicels glabrous. Calyx glabrous or subglabrous at the base, broadly oblong-campanulate; teeth triangular, two-thirds the length of the tube, hairy or ciliated on the margins and midribs. Corolla half as long again as the calyx, glabrous without and within. Nucules "smooth." (*Baker.*)

Var. α , *genuina*.

M. gentilis, *Linn.* herb. (in part.) *Baker*, l. c. p. 250. *Fries*, Nov. Fl. Succ. ed. ii. p. 187.

Stem thinly hairy. Leaves rather thick, thinly hairy above, more thickly so beneath. Calyx teeth densely hairy.

Var. β , *Wirtgeniana*.

M. Wirtgeniana, "*F. Schultz.*" *Baker*, l. c. p. 250.

Stem nearly glabrous. Leaves rather thin, subglabrous above, glabrous beneath except on the veins. Calyx teeth sparingly hairy.

Var. γ , *Pauliana*.

PLATE MXXXVII.

M. Pauliana, "*F. Schultz.*" *Baker*, l. c. p. 250.

Stem nearly glabrous, except sometimes on the upper part. Leaves hairy above, glabrous beneath except on the veins. Calyx teeth densely hairy.

In wet places and cultivated ground. Not uncommon in England. Rare in Scotland, where I have seen it only from Dumfriesshire and Berwickshire.

England, Scotland. Perennial. Early Autumn.

Stem 1 to 2 feet high, generally considerably branched. Leaves distinctly though shortly stalled; lamina, 1 to 2 inches long. Whorls distant, with the lower bracts 3 or 4 times the length of the flowers. It has sometimes been mistaken for *M. rubra*, but the calyx is much broader and more rounded at the base, and the teeth taper gradually, and are not suddenly acuminate; the flowers are only about half the size of those of *M. rubra*.

Bushy Red Mint.

French, *Menthe des jardins*. German, *Edelminze*.

SPECIES XIV.—**MENTHA ARVENSIS.** *Linn.*

PLATES MXXXVIII. MXXXIX. MXL.

Baker, Journ. Bot. 1865, p. 251.*M. arvensis*, var. ϵ . *Benth.* in *D.C.* Prod. Vol. XII. p. 172.*M. arvensis*, var. α and β . *Hook. & Arn.* Brit. Fl. ed. viii. p. 325.

Leaves spreading, shortly stalked, oval or ovate or oval-rhomboidal or oblong-ovate, rounded or wedge-shaped at the base, slightly tapering towards the apex, acute or subacute or obtuse, bluntly serrate or crenate-serrate, more or less hairy on both sides, rarely subglabrous except on the veins beneath. Flowers in whorls, which are all separate, beginning below or about the middle of the stem. Bracts similar to the leaves, and usually equalling them in size, or the upper ones smaller, uppermost ones without flowers; bracteoles strap-shaped, acute, ciliated, shorter than the flowers. Pedicels hairy or glabrous. Calyx hairy, campanulate, scarcely longer than broad; teeth deltoid, acuminate, acute or obtuse, about one-third the length of the tube, hairy. Corolla about twice as long as the calyx, hairy without and within. Nucules rough with small points.

Var. α , *genuina*.

PLATE MXXXVIII.

Sole, Brit. Mints, p. 29. Pl. XII. *Baker*, l. c. p. 251.

Stem short, generally much branched, thickly clothed with reflexed hairs. Leaves not rugose, bluntly and shallowly serrate, about twice as long as broad, more or less hairy all over, especially above. Upper bracts scarcely diminishing in size. Calyx thickly hairy.

Var. β , *nummularia*.

PLATE MXXXIX.

M. nummularia, "*Schreb.*" *Baker*, l. c. p. 252.

Stem elongated, slightly branched, rather sparingly hairy. Leaves scarcely twice as long as broad, bluntly serrate, not rugose, sparingly hairy on both sides. Upper bracts scarcely diminishing in size. Calyx hairy.

Var. γ , *agrestis*.

PLATE MXL.

M. agrestis, *Sole*, l. c. p. 33. Pl. XIV. *Sm.* E. B. ed. i. No. 2120. *Baker*, l. c. p. 252.

Stem elongated, erect, much branched, hairy. Leaves nearly as

broad as long, coarsely serrated, rugose, very hairy above and on the veins beneath, sparingly so over the rest of the under surface. Upper bracts diminishing in size. Calyx very hairy.

Var. δ , *præcox*.

M. præcox, *Sole*, l. c. p. 31. Pl. XIII. *Baker*, l. c. p. 252.

Stem erect, stout, slightly branched, slightly hairy. Leaves twice as long as broad, sharply serrated with shallow serratures, not rugose, very sparingly hairy on both sides. Upper bracts diminishing rapidly in size. Calyx hairy, with the teeth longer than in the preceding varieties.

Var. ϵ , *Allionii*.

M. Allionii, "*Boreau*." *Baker*, l. c. p. 253.

Stem tall, slightly branched, subglabrous below, slightly hairy above.

Leaves twice as long as broad, crenate-serrate, not rugose, very thinly hairy above or subglabrous, hairy on the veins beneath. Upper bracts not diminishing in size. Calyx rather sparingly hairy; teeth short, scarcely longer than broad.

Var. ζ , *parietariifolia*.

M. parietariifolia, *Beck*. *Baker*, l. c. p. 253.

Stem ascending, elongated, slightly branched, subglabrous. Leaves subrhomboidal, three times as long as broad, attenuated at each end, serrated towards the apex, not rugose, subglabrous. Upper bracts slightly diminishing in size. Calyx sparingly hairy; teeth short.

Vars. α , β , and γ , in cultivated fields and waste places, the two former very common; the var. *agrestis* rare, about the Mendip Hills, Shepton Mallet, and Frome, Somersetshire; it also occurs in Sussex and Durham. Var. δ , ϵ , ζ , by the sides of streams, all apparently rather rare; var. *præcox* was found by Sole by the side of the Avon, near Bath. Var. ϵ is the most common of these waterside forms, and seems to be generally distributed. Var. ζ , Mr. Baker says, was found in Yorkshire many years ago by Mr. John Hardy, of Manchester, on the banks of the Don, near Conisborough, and he has also seen it in Winch's Herbarium, and from the banks of the Mole, near Brockham, Surrey.

England, Scotland, Ireland. Perennial. Summer, Autumn.

A very variable plant; easily recognised, however, by its short truly campanulate calyx, with deltoid teeth.

Var. *agrestis* is a remarkable one, differing very much in habit from the other forms, with the leaves broader, more rugose, and often subcordate at the base; of this I have seen only the specimen in Mr. Hardy's collection.

The var. *præcox* has somewhat the habit of *M. sativa*, but the calyx is shorter, and the teeth, though longer than in the other forms of *M. arvensis*, are nevertheless shorter than those of *M. sativa*.

The var. *Allionii* somewhat resembles *M. gentilis*, but the calyx is shorter, the teeth triangular, and the corolla hairy.

With the var. *parietariifolia* I am not acquainted. A specimen among Mr. Hardy's mints on a sheet labelled from the station given for this by Mr. Baker, is var. *Allionii*; but as the specimen is not affixed to the sheet, the true plant may have been displaced.

Corn Mint.

French, *Menthe des champs*. German, *Feldminze*.

SUB-GENUS II.—PULEGIIUM. *Miller.*

Calyx nearly bilabiate, the throat closed with hairs.

SPECIES XV.—*MENTHA PULEGIUM*.

PLATES MXLI. MXLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXC. Fig. 2.

Sole, Brit. Mints, p. 51, Pl. XXIII.

Pulegium vulgare. Mill. Koch, Syn. Fl. Germ. et Helv. ed. ii. p. 636.

Leaves shortly stalked, oval or elliptical, wedge-shaped at the base, obtuse, repand or remotely denticulate-serrate, subglabrous or more or less hairy on both sides. Flowers in whorls, which are all separate, beginning about or below the middle of the stem. Bracts similar to the leaves, and equalling them in size, the uppermost ones sessile, without flowers; bracteoles generally absent, when present obovate or oblanceolate, shorter than the flowers. Pedicels puberulent or hispid. Calyx puberulent or hispid, funnel-shaped cylindrical, contracted at the throat in fruit; teeth lanceolate-acuminate, half as long as the tube, ciliated with bristly hairs; the two lower teeth longer any narrower than the others, and separated from them by a deeper sinus on each side. Corolla more than twice as long as the calyx, hairy without, glabrous within.

Var. *α, decumbens.*

PLATE MXLI.

Stems weak, decumbent, diffuse, flexuous, rooting at the lower nodes.

Var. β , *erecta*.

PLATE MXLII.

Flowering stem stout, erect, or sub-erect, straight, not rooting at the nodes.

On moist heaths and commons, and by the sides of pools. Sparingly distributed over England, becoming rare in the north. In Scotland it has been gathered near the church of Birnie, Elgin, but certainly introduced. It appears to be widely but locally spread over Ireland. Var. β I have seen from Great Island, Co. Cork, collected by Mr. Carroll.

England, [Scotland,] Ireland. Perennial. Late Summer, Autumn.

Stems 3 inches to 1 foot long, with the barren shoots spreading above ground, and leafy. Leaves rather thick, $\frac{1}{4}$ to 1 inch long, gradually attenuated into the short petioles. Verticillasters globular, often as long as the recurved bracts, diminished in size towards the apex of the stem. Flowers $\frac{1}{2}$ inch long, with the limb purplish rose. Calyx reddish purple, with 10 strong ribs, varying in the length of the hairs with which it is closed; in fruit contracted above the muscles, and closed with white hairs, the upper teeth then slightly recurved. Stamens very long. Plant deep green, with a powerful agreeable odour, varying much in pubescence, being sometimes nearly glabrous, at others densely clothed with white woolly hairs.

In var. β , the stem is much stouter, with short branches, with the barren shoots produced only at the base; the verticillasters are more numerous and closer together; the calyx teeth rather longer and more acute.

Penny-royal.

French, *Menthe pouliot*. German, *Polei*.

This species of mint is supposed to have been the $\gamma\lambda\acute{\iota}\chi\omega\nu$ of the ancient Greeks, and the Puleium or Pulegium of the Romans. It has been supposed to drive away fleas; hence its Roman name and its modern specific name. Dr. Prior tells us that its common name, Penny-royal, comes from the Latin Pulegium regium, through the Dutch Poley, in old herbals called Puliol-royal. It is also called *Pudding Grass*, from being used to make stuffings for meat, formerly called puddings. It is sometimes known to the country people as "Run by the ground" and "Lurk in the ditch," from its manner of growth. Gerarde speaks of it as being found abundantly on a common "at Mile End, near London, about the holes and ponds thereof, in sundrie places, from whence poore women bring plenty to sell in London markets." The whole herb contains an essential oil, resembling in properties that of other mints, but less powerful. In former times it was highly esteemed as a medicine. Pliny, to whom it is called Pulegium, gives a long list of disorders for which it was a supposed remedy, and especially recommends it for hanging in sleeping-rooms, it being considered by physicians as more conducive to health than even roses. We suspect it was in a great measure used as a substitute for ventilation, to cover the ill odours

retained by closed windows. It was likewise thought to communicate its purifying qualities to water, and Gerard tells us: "If you have, when you are at the sea, Penny-royale in great quantity dry, and cast it into corrupt water, it helpeth it much, neither will it hurt them that drink thereof." As a purifier of the blood, as well as other things, it is highly spoken of: "Penny-royale taken with honey cleanseth the lungs, and cleareth the breast from all gross and thick humours." According to Boyle, it is a useful medicine in hooping-cough; but, as this disease is just one which no internal remedy is ever known to affect, it is safe to recommend it, without fear of its unfavourable contrast with other medicines. It was deemed by our ancestors as valuable in headaches and giddiness. We are told: "A garland of Penny-royale made and worne about the head is of great force against the swimming in the head, and the paines and giddinesse thereof."

TRIBE II.—SATUREIINÆ.

Corolla bilabiate; upper lip flat. Stamens 4, divergent, or curved and converging at the apex; the outer or lower pair the longest; anthers 2-celled, cells convergent.

GENUS III.—**THYMUS**. *Linn.*

Calyx bilabiate, with 10 to 13 striæ, 5-toothed; 3 upper teeth short, triangular; lower pair linear-subulate, ascending. Corolla bilabiate; upper lip notched; lower lip 3-lobed, with the middle lobe larger than the others, notched. Stamens 4; filaments straight, divergent; anther-cells at length diverging at the base, not contiguous at the apex.

Aromatic undershrubs, with small entire leaves, often with revolute margins. Flowers pale purple, blue, or white, in verticillasters collected into terminal heads or lax spikes, or with the verticillasters distant, in the former case sometimes with the bracts coloured.

The origin of the name of this genus of plants is thus given by several authors: It is said to be *θύμος* (*thymos*) of Theophrastus and Dioscorides; from *θύμος* (*thymos*), courage, strength, the smell of thyme being reviving; or from *θύω* (*thyo*), to perfume, because it was used for incense in temples.

SPECIES I.—**THYMUS SERPYLLUM**. *Linn.*

PLATES MXLIII. MXLIV.

Stems weak, procumbent or ascending, branched. Leaves flat, shortly stalked, elliptical-oblong or oval, obtuse, entire. Flowers capitate, usually with several separated whorls beneath the terminal head. Bracts resembling the leaves. Calyx widely funnel-shaped, attenuated towards the base, the 3 upper teeth triangular, the 2 of the lower lip triangular-subulate; all ciliated. Tube of the corolla not exceeding the calyx.

? SUB-SPECIES I.—*Thymus eu-Serpyllum*.

PLATE MXLIII.

Billot, Fl. Gall. et Germ. Exsicc. No. 828.*T. Serpyllum*, *Fries*, Nov. Fl. Suec. ed. ii. p. 165. *Dub. Man. Brit. Bot.* ed. v. p. 256.*T. Serpyllum*, var. *a.* *Hook. & Arn.* Brit. Fl. ed. viii. p. 326.

Stems weak, procumbent, rooting, much branched, with the barren shoots lateral and terminal, the latter elongate, rooting; stem of the preceding year continued as a barren shoot or dying off. Leaves oblong-ob lanceolate or oval-ob lanceolate, gradually attenuated into the petiole. Flowering shoots all (?) lateral, erect, or ascending, short. Flowers capitate, or rarely with 1 whorl beneath the terminal head. Stem usually pubescent all round.

On banks, pastures, heaths, and on rocks. Common, especially in mountainous districts; generally distributed. Rare in the immediate vicinity of London.

England, Scotland, Ireland. Perennial. Summer and early Autumn.

Rootstock woody. Stems woody, wiry, prostrate, creeping, producing short barren branches and ascending flowering shoots; the apex continuing to grow as a barren shoot in the succeeding year or dying at the apex. Leaves $\frac{1}{8}$ to $\frac{1}{4}$ inch long, usually ciliated with long white hairs, midrib thick, prominent beneath, as are also the lateral veins, which are usually 2 on each side. Flowering stems 1 to 3 inches high, terminated by a dense head of flowers. Pedicels more or less hispid with white hairs. Calyx generally purple, with white hairs; the throat in fruit closed by a dense tuft of them. Corolla scarcely $\frac{1}{4}$ inch long, rosy purple, the upper lip quadrate-orbicular, deeply notched; lower lip slightly longer. Plant varying much in hairiness, sometimes, especially in dry chalky places, quite white with hairs, and at other times the leaves quite glabrous, except a few hairs on the margins at the base. Stem hairy, with short or elongated reflexed white hairs all round, or with a tendency to be confined to two strips of pubescence.

*Creeping Wild Thyme.*French, *Thym serpolet*. German, *Feld Quendel*.

This well-known pretty sweet-scented little evergreen is abundant on all sandy or calcareous pastures; and but few of us are there who do not

“Know a bank on which the wild thyme blows.”

It forms thick, dense tufts when growing alone, but when mingling with other herbage it runs among them, throwing out long trailing stems, which root at intervals. There are two kinds of thyme cultivated in gardens for culinary purposes, the common thyme and the lemon-scented thyme. Both plants are strongly aromatic, the leaves and flowers especially containing a large quantity of essential oil. Little use has been made of it in medicine, but the oil is sometimes applied as a remedy in toothache.

In France a decoction of the plant has been used to cure the itch and some other skin disorders. Linnaeus recommends it for curing headache and the effects of intoxication. It is very probable that to the presence of this herb, as well as others of an aromatic kind, the superior flavour of the flesh of sheep fed upon downs and moorlands where they grow is attributable; for, although some writers assert that these animals never feed on them, it is undeniable that, wherever the thyme and marjoram grow in the thick short grass, they are cropped as close as the rest of the herbage. Bees delight in thyme; and those who keep these interesting little creatures do well to have a bed of thyme planted near their hives:

“Here their delicious task the fervent bees
In swarming millions tend; around, athwart,
Thro’ the soft air the busy nations fly,
Cling to the bud, and with inserted tube
Suck its pure essence, its ethereal soul,
And soaring dare
The purple heath, or where the wild thyme grows,
And yellow load them with the luscious spoil.”

We agree thoroughly with the amiable Shenstone, who

“Cultur’d his thyme for the bees,
But never would rifle their cell.”

At the present day the numerous inventions to divide the honey fairly between the bees and their owners renders all piracy or cruelty quite unnecessary.

‡ SUB-SPECIES II.—*Thymus Chamædrys*. *Fries*.

PLATE MXLIV.

Billot, Fl. Gall. et Germ. Exsicc. No. 827.

Fries, Nov. Fl. Succ. ed. ii. p. 197.

T. Serpyllum, var. *β*, *Hook. & Arn.* Brit. Fl. p. 326.

T. Serpyllum, var. *α*, *Chamædrys*. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 641.

Stems wiry, ascending, not rooting (or rooting only at the base), slightly branched, with the barren shoots all lateral, short, not rooting; stem of the preceding year not continued as a barren shoot or dying off. Leaves oval or elliptical-oval or oblong-elliptical, generally rather abruptly contracted into the petiole. Flowering shoots lateral and terminal, the stem of the preceding year growing out into a flowering shoot. Flowers subcapitate, generally with several separate whorls beneath the terminal head. Stem usually pubescent in 2 or 4 strips.

On gravelly heaths, pastures, and chalky banks. Probably common, and certainly widely distributed. This is the only thyme I have been able to meet with in the vicinity of London, where it is very abundant on all the surrounding commons and chalk hills. In Scotland it is much less abundant than *T. eu-Serpyllum*, though I have gathered it as far north as Orkney. The authors of the “*Cybele Hibernica*” state

that it has not come under their notice, but it is given by Professor Babington as an Irish plant.

England, Scotland, Ireland? Perennial. Summer, Autumn.

This plant is so extremely like *T. eu-Serpyllum*, that it is often difficult to distinguish the two from herbarium specimens, although the living plants can be identified readily enough. *T. eu-Serpyllum* grows in flakes, with the barren shoots at length forming a fringe on the outside. *T. Chamædrys* grows in a tuft, with the flowering shoots far exceeding the barren ones, as the stem of the preceding year terminates in a flowering and not in a barren shoot. The flowering shoots of *T. Chamædrys* are generally much longer, with the pubescence confined to 2 or 4 strips; the leaves are generally larger, broader in proportion, and less narrowed at the base; the inflorescence is less capitate, from the whorls being more numerous and continued further down the stem; the flowers are generally larger than *T. eu-Serpyllum*, and have the upper lip of the corolla shorter and more rounded. The plant varies from subglabrous to densely hairy.

I have seen specimens of *T. eu-Serpyllum* in which the stem of last year appears to produce a flowering shoot at the apex, but it is certainly very rarely the case, and possibly only apparent, i. e. that the bud which ought to have produced a barren shoot has died, and the flowering stem may have come from a lateral bud at the very end of the living portion of the stem of the previous year. If this supposition be correct, the two British forms of thyme should be considered as *ver-species*, on account of a constant physiological difference, between them.

Larger Wild Thyme.

GENUS IV.—**ORIGANUM.** *Linn.*

Calyx with 10 to 13 striæ, regular, or more or less bilabiate, 5-toothed; teeth nearly equal. Corolla sub-bilabiate; the upper lip notched; lower one 3-lobed, with the lobes nearly equal. Stamens 4; filaments straight, divergent; anther-cells at length diverging at the base, not contiguous at the apex.

Herbs or under-shrubs with entire or toothed leaves. Flowers pale purple, lilac, or white, in short sub-cylindrical or 4-sided dense spikes, with the bracts usually coloured. Verticillasters reduced to pairs of flowers.

The name of this genus is said to be derived from ὄρος (*oros*), a mountain, and γάνος (*ganos*), joy, the delight of the mountain. It is the *Origanum* of Pliny, and ὀρίανον of Theophrastus and Dioscorides.

SPECIES I.—**ORIGANUM VULGARE.** *Linn.*

PLATES MXLV. MXLVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXII.

Rootstock shortly creeping, with short slender ascending stolons bearing minute leaves towards the apex. Stem stout, erect. Leaves shortly stalked, ovate or rhombic-ovate or subdeltoid-ovate, subacute, repand. Spikes ovoid or oblong, aggregated at the extremity of the stem and branches, and taken together forming a narrow corymbose-topped panicle. Bracts rhombic-oval, acute, slightly longer than the calyx, dark purple, with a green base, rarely entirely green.

Var. α , *genuinum*.

PLATE MXLV.

Billot, Fl. Gall. et Germ. Exsicc. No. 65.

O. vulgare, *Link*; *Boreau*, Fl. du Centre de la Fr. Vol. II. p. 516. *Schur*, Enum. Pl. Transsylv. p. 524.

Spikes short, ovoid, few-flowered.

Var. β , *prismaticum* *Gaud.*

PLATE MXLV.

O. megastachyum *Link*; *Boreau*, l.c. Vol. II. p. 516. *Schur*, l.c. p. 524.*O. vulgare*, var. *megastachyum*, *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 639.*O. Creticum*, var. β , *Linn.* Sp. Pl. p. 823.

Spikes elongate, prismatic, many-flowered.

On banks, by roadsides, in waste and bushy places, and open woods; very common in chalky districts, less common elsewhere, but extending over the whole of England. Rare in Scotland, but reaching north to the counties of Moray, Aberdeen, and Argyle. Generally distributed in Ireland, especially in the south. Var. β was found near Kinshaw, North Herefordshire, by the Rev. W. H. Purchas, but considered by him to be very doubtfully native in that station: I have it also from Cramond Bridge, near Edinburgh, collected by Dr. Murchieson.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock woody, branched, and shortly creeping, so as to produce tufts of stems, which are 9 inches to 3 feet high. Lower leaves generally decayed at the time of flowering, the rest with fascicles of smaller leaves or short branches in their axils; lamina $\frac{1}{2}$ inch to $1\frac{1}{2}$ inch long. Spikes rarely exceeding $\frac{1}{4}$ to $\frac{3}{8}$ inch long in var. α , but

attaining the length of $\frac{3}{4}$ to 1 inch in var. β . Bracts $\frac{1}{4}$ inch long, purple at the apex, or nearly wholly purple (except when the flowers are white, in which case the bracts are pale green), glabrous, or sparingly hairy in lines. Calyx cylindrical, slightly enlarged upwards in flower, much so in fruit, glabrous or slightly hairy in lines, sprinkled with yellow dots; teeth triangular, one-third the length of the tube, the same colour as the bracts; throat closed by hairs in fruit. Tube of the corolla slightly exceeding the calyx; limb with the upper lip narrow, slightly notched, the lower lip 3-lobed; colour purplish pink, varying in intensity, rarely white. Stamens sometimes exserted, sometimes included. Nucules brown, ovoid, slightly compressed, granulated. Plant more or less pubescent, the pubescence on the stem mainly in two opposite strips, on the leaves densest towards the margins on the upper side, and on the veins beneath.

Common Marjoram.

French, *Origan commun.* German, *Gemeiner Dost.*

This plant has a very ancient medical reputation. The Greeks used it extensively, both internally and for making fomentations. It was esteemed as a remedy for narcotic poisons, convulsions, and dropsy, by them, and also by the older herbalists of Europe. The whole plant has a strong, peculiar, rather agreeable balsamic odour, and a warm, bitterish, aromatic taste, both of which properties are preserved when the herb is dry. It yields, by distillation with water, a small quantity of a reddish volatile oil, which may be seen in vesicles on holding up the leaves between the eye and the light, and which is the chief source of its properties as a medicinal agent. It is still an ingredient in some embrocations in use in England, and has a special reputation for toothache. In medicine it is commonly, but erroneously, called oil of thyme. 1 lb. of the oil is produced from about 200 lbs. of the herb, which should be gathered when just coming into flower, which it does about the middle of July. Large quantities of it are still gathered and hung up to dry in cottages in Kent and other counties for making marjoram tea. The "swete margerome," as our fathers called it, was so much prized before the introduction of various foreign perfumes, that "swete bags" and "swete washing waters" made from this plant were to be found in every druggist's shop. The flowering tops yield a purple dye, formerly used by the peasantry for giving colour to wool, but the tint is neither brilliant nor durable. The tops are sometimes put into table-beer to give it an aromatic flavour and make it keep, and before the introduction of hops they were nearly as much in demand for ale-brewing as the ground ivy or the wood sage. The origin of the word Marjoram, or rather that of the Latin Marjorana, of which our term is a corruption, is unknown.

GENUS V.—*CALAMINTHA.* *Mönch.*

Calyx tubular, with 13 striæ, bilabiate; upper lip 3-toothed, more or less spreading, the lower one 2-toothed, erect. Corolla bilabiate, the tube usually longer at the calyx and nearly straight; upper lip erect, nearly flat, notched or entire; lower one 3-lobed, with the lobes nearly equal. Stamens 4; filaments converging at the apex under the

upper lip of the corolla; anther-cells at length diverging at the base, not contiguous at the apex.

Herbs or undershrubs of various habit.

The derivation of the name of this genus of plants appears to be from *καλός* (*kalos*), *sweet*, and *μινθα* (*mintha*), *mint*.

SUB-GENUS I.—CLINOPODIUM. *Linn.*

Verticillasters many-flowered; the cymes with a very short common peduncle, or without any. Bracteoles setaceous, numerous, forming a kind of involucre to the whorl. Calyx tube slightly curved, not conspicuously gibbous on the under side.

SPECIES I.—CALAMINTHA CLINOPODIUM. *Spreng.*

PLATE MXLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXXIV. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 608.

Clinopodium vulgare, Linn. Sm. Eng. Bot. ed. i. No. 1401. et Auct. Plur.

Leaves ovate or deltoid- or rhombic- or lanceolate-ovate, subobtusely or subacute, repand or faintly crenate-serrate. Flowers in a terminal head, with distant whorls beneath it; verticillasters very shortly stalked. Bracts setaceous, as long as the pedicels and calyx. Calyx erect on the pedicel; tube slightly curved, indistinctly gibbous at its base below; teeth two-thirds the length of the tube, the 3 upper triangular, abruptly acuminate into subulate points, straight, diverging, the 2 lower subulate and slightly curved upwards. Corolla 2 to 3 times as long as the calyx, hairy on the outside; upper lip emarginate, the middle lobe of the lower lip larger than the others and emarginate.

In bushy places, hedges, and open woods. Common, and generally distributed throughout the kingdom; reaching north to Moray, Aberdeen, and Lanark.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Rootstock woody, shortly creeping, much branched, in autumn producing stolons similar to those of *Origanum vulgare*. Stem generally unbranched, erect or subdecumbent, flexuous, 1 to 3 feet high. Leaves distant, the lamina 1 to 2 inches long; bracts similar, but narrower; those of the terminal head sometimes much smaller, but generally nearly as large as the others. Cymes shortly stalked, with numerous long slender bracteoles. Flowers shortly pedicellate. Calyx nearly $\frac{1}{2}$ inch long, striate, thinly clothed with spreading bristly hairs, green, the teeth often purple. Corolla $\frac{3}{4}$ to 1 inch long, purplish crimson, the tube

gradually enlarged upwards, under lip a little longer than the other. Nucules dark brown, roundish-ovoid, plano-convex, nearly smooth. Plant more or less hairy with woolly hairs, those on the stem reflexed, showing a disposition to an arrangement in 2 strips; hairs on the leaves most numerous on the veins beneath.

Wild Basil.

French, *Clinopode*. German, *Wirbeldost*.

All the plants of this genus yield a fragrant aromatic oil and an agreeable odour.

SUB-GENUS II.—ACINOS. *Mönch*.

Verticillasters of about 6 flowers, without a common peduncle. Bracteoles few, minute, subulate, not forming an involucre to the whorl. Calyx tube curved, conspicuously gibbous on the under side a little above the base.

SPECIES II.—**CALAMINTHA ACINOS.** *Clairv.*

PLATE MXLVIII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXXXIX. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 830.

Thymus Acinos, *Linn. Sm.* Engl. Bot. ed. i. Pl. 411.

Melissa Acinos, *Benth.* Cat. p. 389.

Acinos vulgaris, *Pers. Syn. Pl.* Vol. II. p. 181.

Leaves rhombic-oval or rhomboidal-elliptical, attenuated at each end, subacute, remotely serrate in the apical half or repand. Flowers racemose; verticillasters separate, shorter* than the bracts, without a common stalk to the cymes, so that each whorl consists of 6 (rarely 4 or 8) separate flowers. Bracteoles lanceolate, much shorter than the pedicels. Calyx making an angle with the pedicel; tube slightly curved, very gibbous at the base below, especially in fruit; teeth two-thirds the length of the tube, the 3 upper ones triangular-subulate and abruptly bent upwards below the middle, the 2 lower narrowly subulate and slightly curved upwards. Corolla twice as long as the calyx, hairy on the outside; upper lip slightly notched, the middle lobe of the lower lip slightly larger than the others and emarginate.

On dry banks and in fields, on chalky, gravelly, or sandy soils. Rather scarce, but generally distributed over England. Rare in Scotland, extending north to the counties of Aberdeen, Moray, and Ayr. Very rare in Ireland, and only occurring on the south-eastern part of the island.

* Reckoning from the axil of the bract to the tip of the calyx teeth.

England, Scotland, Ireland. Annual or Biennial. Summer
Autumn.

Stems branching at the base, otherwise simple or nearly so in annual plants: in biennial ones there is a short rootstock rooting at the nodes, and the stems are frequently considerably branched. Leaves shortly stalked, gradually attenuated into the petiole; lamina thick, $\frac{1}{4}$ to $\frac{1}{2}$ inch long, with the veins prominent beneath. Bracts all similar to the leaves, but rather smaller and narrower. Pedicels shorter than the calyx. Calyx $\frac{1}{4}$ inch long, with 10 bristly ribs, contracted at the throat, which is closed by white hairs. Corolla about $\frac{1}{2}$ inch long, bluish purple, variegated with white on the lower lip, in the middle of which there is a purple spot. Fruiting calyx remarkably enlarged at the base below. Nucules dark brown, ovoid, slightly compressed. Plant varying much in the degree of hairiness; the underside of the leaves generally glabrous except on the veins; stem with woolly spreading or recurved hairs, showing a tendency to confine themselves to 2 strips.

Basil Thyme.

French, *Calament des Champs.* German, *Feld-Calaminthe.*

This plant, according to Parkinson, is so called "because the smell thereof is so excellent that it is fit for a King's house." It was a great favourite with the old herbalists. Gerarde enumerates twelve distinct uses to which it may be applied without fear of failure. Among them we find that "it cureth them that are bitten of serpents; being burned or strowed, it drives serpents away; it takes away black and blew spots that come by blows or by beatings, making the skinne faire and white; but for such things, saith Galen, it is better to be laid to greene than dry."

SUB-GENUS III.—EU-CALAMINTHA. *Gren. and Godr.*

Verticillasters many-flowered, the cymes with a more or less distinct common peduncle. Bracteoles few, minute, lanceolate-subulate, not forming an involucre to the whorls. Calyx tube straight.

SPECIES III.—**CALAMINTHA NEPETA.** *Clair.*

PLATE MXLIX.

Billot, Fl. Gall. et Germ. Exsicc. No. 281.
Jord. Obs. sur Plantes nouv. &c. Frag. iv. p. 12.
Thymus Nepeta, *Sm.* Engl. Bot. No. 1414.
Melissa Nepeta, *Linn.* Sp. Pl. p. 828 (non Herb.).

Stems with short suberect lateral branches. Leaves ovate or deltoid- or broadly rhombic-ovate, subobtusely, remotely crenate-serrate. Flowers in a long slender sub-unilateral panicle; verticillasters all longer than the bracts, stalked; peduncle much shorter than the bract, nearly as long as the pedicel of the central flower of the cyme. Calyx

erect upon the pedicel, and shorter than it; 3 upper teeth triangular, slightly recurved, the 2 lower twice as long as the upper, slightly curved upwards, triangular, abruptly acuminate into long subulate points, all finely ciliated; throat closed with dense hairs, which project beyond the tube. Corolla about twice as long as the calyx teeth; the middle lobe of the lower lip broad and truncate.

On dry banks and roadsides, especially on chalky soil. Rather rare, and apparently confined to the southern half of England; extending north to Norfolk, Cambridge, Gloucester, and South Wales. Reported from the south-west of Ireland, probably from near Mucruss, Killarney; but Professor Babington considers his specimen collected there to belong to *C. nepetoides*, *Jordan*.

England, Scotland, Ireland? Perennial. Late Summer, Autumn.

Rootstock shortly creeping, much branched, so that the stems appear in annular tufts. Stem 1 to 2 feet high, virgate, with short ascending lateral branches. Leaves shortly stalked; lamina $\frac{1}{4}$ to 1 inch long. Bracts similar to the leaves but smaller, the uppermost ones subsessile and narrowed towards the base. Calyx $\frac{1}{4}$ inch long, puberulent on the veins, often tinged with purple. Corolla white, variegated with lilac dots on the lower lip, about $\frac{1}{2}$ inch long, with the tube straight. Nucules ovoid, brown. Plant greyish green, the stem clothed with short soft woolly pubescence, which is recurved on the branches and pedicels, but spreading on the main stems; leaves more or less pubescent on both sides, firm.

Lesser Calamint.

French, *Calament Népéta*.

SPECIES IV.—**CALAMINTHA MENTHIFOLIA.** *Host.*

PLATES ML. MLI.

Billot, Fl. Gall. et Germ. Exsicc. No. 280.

C. officinalis, *Münch*; *Benth.* in *D.C.* Prod. Vol. XII. p. 228. *Bab. Man.* Brit. Bot. ed. v. p. 257. *Hook. & Arn.* Brit. Fl. ed. viii. p. 337.

C. ascendens, *Jord.* Obs. sur Pl. nouv. et crit. Frag. iv. p. 8.

Thymus Calamintha, *Sm.* Engl. Bot. No. 1676.

Stem flexuous, with elongate incurved-ascending lateral branches. Leaves deltoid-ovate or rhombic-ovate, subobtusely, faintly crenate-serrate. Flowers in a rather long and dense unilateral panicle; lower verticillasters shorter than the bracts, stalked; peduncle much shorter than the bract, shorter than the pedicel of the central flower of the cyme, except in the lower ones, where it occasionally equals or even exceeds it. Calyx making an angle with the pedicel, and equalling

or exceeding it; 3 upper teeth triangular, ascending-recurved, the 2 lower twice as long as the upper, slightly curved upwards, triangular, gradually acuminate into long subulate points, all ciliated with long hairs; throat closed with hairs, which are nearly concealed within the tube. Corolla about twice as long as the calyx teeth; middle lobe of the lower lip larger than the others, longer than broad, separate from the lateral lobes.

Var. α , *genuina*.

PLATE ML.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXXVII. Fig. 1.

C. officinalis menthæfolia. Reich. fil. Vol. XVIII. p. 44.

Peduncles considerably shorter than the pedicel of the central flower of the cyme.

Var. β , *Briggsii*.

PLATE MLI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLVIII. Fig. 2.

C. officinalis ascendens, Reich. fil. p. 44.

Peduncles in the lower verticillasters equalling or exceeding the pedicel of the central flower of the cyme.

On hedge-banks, borders of fields, by roadsides, and on dry banks, particularly in chalky and gravelly soils. Rather rare, but generally distributed over England and Ireland. Var. β I have seen only from Yealm Bridge and Sea Mill Bridge, Devonshire, whence it was sent me by Mr. T. R. Archer Briggs.

England, Scotland. Perennial. Late Summer, Autumn.

Rootstock shortly creeping, woody, the stems not produced in annular tufts as in *C. Nepeta*, but either solitary or in compact tufts, slightly flexuous, 1 to 3 feet high, with a few branches, the lower ones from about the middle of the stem, the upper ones rapidly decreasing in size. Leaves stalked; lamina 1 to 2 inches long, less deeply crenate-serrate than in *C. Nepeta*; cymes less distinctly forked, more dense; calyx bent upon the pedicel, especially in fruit; the lower teeth more slender and more gradually acuminate; corolla rather larger, white, speckled with lilac on the lower lip, and often with a pale purple shade on the tube; plant darker green, with longer and more bristly hairs upon the calyx. Leaves and stem hairy, the hairs on the upper part of the latter short and recurved, or elongate and spreading.

The specimens named "*Melissa Calamintha*" and "*Melissa Nepeta*" in the Linnean Herbarium are both *Calamintha Nepeta*.

Var. β is a larger plant, more bristly-hairy, and with the lower

peduncles often much elongated: the whole plant has more the aspect of *M. sylvatica*.

Common Calamint.

French, *Calament Ascendant*.

SPECIES V.—**CALAMINTHA SYLVATICA.** *Bromf.*

PLATE MLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXXVI. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2792.

C. officinalis, *Jord.* Obs. Pl. nouv. et crit. Frag. 4. p. 4. *Gren. & Godr.* Fl. de Fl. Vol. II. p. 663.

C. officinalis vulgaris, *Reich. fil.* l. c. p. 44.

Stems flexuous, nearly simple, or with elongate ascending lateral branches. Leaves ovate or rhombic-ovate, subobtusely serrate or deeply crenate-serrate. Flowers in a rather long lax unilateral panicle; lower verticillasters about as long as the bracts, stalked; peduncle shorter than the bract, equal to or longer than the pedicel of the central flower of the cyme. Calyx shorter than the pedicel, making an angle with it; 3 upper teeth triangular, abruptly recurved and spreading, the 2 lower twice as long as the upper, slightly curved upwards, triangular, insensibly acuminate into long subulate points, all ciliated with long hairs; throat closed with hairs, which are entirely concealed within the tube. Corolla about twice as long as the calyx teeth; lobes of the lower lip contiguous, the middle lobe scarcely exceeding the lateral ones in length, broader than long.

On a chalky bank, growing among *Rubus cæsius* and *Nepeta Glechoma*, in woods on the western side of a small valley between Apesdown and Rowledge farms, rather less than 3 miles W.S.W. of Newport, Isle of Wight. Discovered by the late Dr. Bromfield in 1843.

England. Perennial. Late Summer, Autumn.

This plant is very near *C. menthifolia*: but the rootstock is more distinctly creeping; the stems less branched, with more spreading branches; the leaves larger, more ovate, more deeply and sharply toothed, and with shorter petioles; cymes more distant and more lax, more distinctly forked, with longer peduncles; calyx more narrowed towards the base, the upper teeth more abruptly reflexed; corolla much larger, $\frac{3}{4}$ to 1 inch long, purplish rose, variegated with white on the lower lip, which has broader lobes; nucules broader and smoother.

In both this and the preceding species short stolons are emitted in autumn, which take root at the base.

Wood Calamint.

French, *Calament des Bois*. German, *Gebräuchliche Calaminthe*.

GENUS VI.—**MELISSA.** *Linn.*

Calyx tubular, with 13 striae, bilabiate; upper lip 3-toothed, spreading, the lower 2-toothed, erect. Corolla bilabiate, the tube longer than the calyx, and bent upwards; upper lip concave, notched, the lower 3-lobed, with the middle lobe rather larger than the others. Stamens 4, converging at the apex under the upper lip of the corolla; anther-cells at length diverging at the base, contiguous and united at the apex.

Aromatic herbs, with stalked, ovate, rugose leaves, and few-flowered verticillasters of white flowers often spotted with lilac.

The origin of the name of this genus of plants is from μέλισσα (a bee), or *Mel* (honey), because bees are fond of it.

SPECIES I.—**MELISSA OFFICINALIS.** *Linn.*

PLATE MLIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLXI.

Billot, Fl. Gall. et Germ. Exsicc. No. 3177.

Stem erect, branched. Leaves broadly oblong-ovate, truncate or cordate at the base, deeply crenate-serrate, rugose. Bracts oval or rhombic-ovate, similar to the leaves; bracteoles few, elliptical. Verticillasters shortly stalked, few-flowered, distant, sub-secund. Corolla half as long again as the calyx.

By roadsides and hedge-banks. Naturalised in many places in England. I have gathered it between Cowes and Newport, Isle of Wight, at Claygate, and between Kew and Richmond, Surrey, and have seen it from the counties of Devon, Cornwall, Gloucester, and Monmouth, also from Jersey.

[England.] Perennial. Autumn.

Rootstock very shortly creeping, so that the plant grows in compact tufts. Stem stout, straight, much branched, with the branches ascending. Lamina of the leaves 1 to 3 inches long, with the veins deeply impressed on the upper surface and prominent beneath. Whorls separate, commencing above the middle of the stem, and also occupying the greater part of the upper branches. Bracts longer than the whorls, similar to the leaves, but with shorter stalks, and generally more narrowed at the base. Calyx distinctly 2-lipped; the central tooth of the upper lip deltoid, cuspidate, with the midrib excurrent, the lateral ones with the midrib much nearer the outside than the inner margin, all slightly recurved; the 2 lower rather longer, broadly triangular-subulate. Corolla white, sometimes spotted with rose, tube slightly curved. Plant bright green, subglabrous, or more rarely hairy, very fragrant, the scent resembling that of *Aloysia citriodora*.

*Common Balm.*French, *Mélisse Officinale*. German, *Gebrauchliche Melisse*.

This plant is known as balm or bawm, which words are contractions from balsam; by some said to be derived from the Hebrew, *bol smin*, chief of oils. In old times it was much liked in gardens, especially where bees were kept. Gerarde tells us "they are delighted with this herbe above others; whereupon it has been called *apiastrum*, for when they are strai'd away, they doe find their way home againe by it, as Virgil writeth in his Georgicks:—

' Here liquors cast in fitting sort,
Of bruised bawme and more base honeywort.' "

He says that Dioscorides writes, "that the leaves drunke with wine or applied outwardly are good against the stings of venomous beasts and the biting of mad dogs; also it helpeth the toothache, the mouth being washed with a decoction; and is likewise good for those that cannot take breath unless they hold their neckes upright."

TRIBE III.—NEPETEÆ.

Corolla bilabiate, upper lip usually vaulted. Stamens 4, parallel, the inner or upper pair the longest; anthers 2-celled, cells contiguous.

GENUS VII.—**NEPETA**. *Linn.*

Calyx 15-ribbed, not bilabiate, 5-toothed, with the teeth unequal, the 3 upper generally longer than the other 2. Corolla bilabiate, tube rather long; upper lip erect, slightly concave, notched or 2-lobed, the lower one spreading, 3-lobed. Stamens 4; anther-cells at length divaricate at the base, contiguous and united at the apex, usually opening by a longitudinal slit common to the two lobes.

Herbs of various habit.

The origin of the name of this genus of plants is from *nepa*, a scorpion, it being reputed efficacious against the bite of that reptile.

SUB-GENUS I.—CATARIA. *Mönch.*

Calyx tabular, slightly curved, generally oblique at the mouth; teeth unequal. Corolla tube sub-exserted; middle lobe of the lower lip suborbicular, concave. Anthers not forming a cross; cells opening by a common longitudinal cleft. Verticillasters aggregated at the extremity of the stem and branches. Bracts of the uppermost verticillasters minute.

SPECIES I.—**NEPETA CATARIA**. *Linn.*

PLATE MLIV.

Reich. Ic. Fl. Germ. et. Helv. Vol. XVIII. Tab. MCCXLII.

Billot, Fl. Gall. et Germ. Exsicc. No. 1046.

Cataria vulgaris, Mönch, Meth. p. 387.

Stem erect. Leaves stalked, ovate-triangular, cordate or subcordate,

acute, coarsely serrate or inciso-serrate. Verticillasters many-flowered, collected into short dense racemes terminating the stem and branches. Bracteoles rather longer than the pedicels. Calyx ovate-oblong, slightly curved, pubescent; teeth lanceolate, attenuated into subulate points, the 3 upper ones longer than the others. Corolla scarcely twice as long as the calyx, densely pubescent on the outside; tube suddenly dilated at the throat; middle lobe of the lower lip transversely suborbicular, concave, the margins dentate. Plant wholly hoary-pubescent.

In hedge-banks, borders of fields, and dry banks, especially in chalky and gravelly soil. Rather rare, and becoming scarcer towards the North. Generally distributed throughout England. Very local in Scotland, where it is said to occur near Gatcheugh, Berwickshire; Craignethin, Lanarkshire; and between Culross and Kincardine, Perthshire, in all which stations it is probably not native. Rare, but widely distributed in Ireland.

England, [Scotland,] Ireland. Perennial. Late Summer, Autumn.

Stems 1 to 3 feet high, erect, stout, branched; with spreading ascending branches. Lamina of the leaves 1 to 3 inches long, in the upper ones narrower and more acute. Verticillasters, in the lower ones stalked, the upper nearly sessile and approximate, all many-flowered, arranged in spikelike racemes collected into panicles. Pedicels shorter than the calyx. Calyx $\frac{1}{2}$ inch long, dilated at the base in front (especially in fruit), strongly ribbed, green, covered with white pubescence; teeth diverging, sometimes purple at the tips, the uppermost one the longest. Corolla scarcely $\frac{1}{2}$ inch long, white, the lip dotted with lilac, tube scarcely exceeding the calyx teeth, curved. Nucules rather large, oblong-ovoid, slightly compressed, dark brown, rough with very minute tubercles. Plant hoary grey, especially on the stem, underside of the leaves and inflorescence, where the pubescence is very dense.

Cat-mint.

French, *Chatavie commune*. German, *Gemeines Katzenkraut*.

The common name of this plant, says Gerard, is "because cats are very much delighted herewith; for the smell of it is so pleasant unto them, that they rub themselves upon it, and wallow or tumble in it, and also feed on the branches very greedily:" which singular statement the good old herbalist copied from Dodoeus, b. 1, c. 4, p. 14, without perhaps ascertaining its truth. It is certain, however, that its scent is very grateful to these animals, and they will destroy and tear any plant of it in a garden, in the same manner as valerian. Miller records an old saying likewise applicable to valerian: "If you set it, the cats will eat it; if you sow it, the cats won't know it." Probably originating in the impossibility of removing the plant without more or less bruising the leaves and emitting the scent.

SUB-GENUS II.—GLECHOMA. *Linn.*

Calyx tubular, slightly curved, oblique at the mouth; teeth unequal. Corolla tube much exerted; middle lobe of the lower lip obcordate, flat. Anthers approximate in the form of a cross; cells opening by a distinct cleft in each. Verticillasters few-flowered, not collected at the extremity of the stem. Bracts of all the verticillasters large, and undistinguishable from the leaves.

SPECIES II.—**NEPETA GLECHOMA.** *Benth.*

PLATE MLV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXLI.

Billot, Fl. Gall. et Germ. Exsicc. No. 1048.

Glechoma hederacea, *Linn.* *Sm.* Engl. Bot. Ed. i. No. 853. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 646. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 678.

Stem procumbent, rooting; flowering branches ascending. Leaves stalked, roundish-reniform or deltoid-reniform, deeply cordate, obtuse or subobtuse, coarsely crenate or crenate-serrate. Verticillasters 2 to 8-flowered, not collected at the top of the stem, often distant. Bracteoles rather shorter than the pedicels. Calyx oblong-cylindrical, slightly curved, sparingly hairy; teeth triangular, attenuated into subulate points, the 3 upper ones longer than the others. Corolla 3 or 4 times as long as the calyx, rarely only twice as long, sparingly pubescent on the outside; tube gradually dilated upwards; middle lobe of the lower lip transversely oblong, obcordate, flat, the margin entire. Plant green, subglabrous or more or less hispid-pubescent.

Var. *α*, *genuina.* *Gren. and Godr.*

Tube of the corolla about 3 times as long as the calyx. Plant glabrous or subglabrous.

Var. *β*, *parviflora.* *Benth.*

Corolla tube scarcely longer than the calyx. Plant subglabrous.

Var. *γ*, *hirsuta.* *Benth.*

Glechoma hirsuta, *Waldst. & Kit.* *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 47.

Corolla tube about twice as long as the calyx. Plant hispid-pubescent.

In hedge-banks, woods, and moist shady places. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Spring, early Summer.

Stems very slender, creeping, much branched; flowering shoots mostly erect, 3 inches to 1 foot high. Leaves $\frac{1}{2}$ to $1\frac{1}{2}$ inches long, on stalks generally exceeding their own length. Peduncle of the verticillasters very short; pedicels shorter than the calyx. Bracteoles lanceolate-subulate. Calyx $\frac{1}{4}$ to $\frac{3}{8}$ inch long, slightly dilated towards the base in front; teeth shorter than the tube, recurved, variable in length and shape, in some specimens nearly deltoid, and in others lanceolate-subulate, the uppermost one longer than the others. Corolla very variable in size, $\frac{1}{2}$ to 1 inch long, purplish blue; under lip variegated with white and dark purple. Nucules ovoid, dark brown, very finely roughened with minute points. Plant green, varying much in pubescence, but the subulate teeth are by no means confined to the more pubescent forms, nor the short broad teeth to the more glabrous ones.

French, *Gléchome*, *Lierre terrestre*. German, *Ephraublättrige Guadalebe*.

This herb is bitter and aromatic; when the leaves are rubbed they give out a slight scent. It was formerly valued as an antiscorbutic, and until the reign of Henry VIII. was commonly used for making beer. At the present time an infusion of the herb is used as a substitute for tea in many places by the peasantry, and is by no means an unwholesome drink. It had at one period a great reputation in numerous diseases, more especially in pectoral complaints. It is called by the older English writers, Ale-hoof, Gill-go-by-ground, Tun-hoof, and Cats'-foot. Gerarde says, "The women of our northern parts do turn the herbe Ale-hoof into their ale; but the reason thereof I know not; notwithstanding, without all controversie, it is most singular against the griefes aforesaid; being tunned up in ale and drunk, it also purgeth the head from rheumaticke humours flowing from the braine." It is still sold in the London herb shops, but its medicinal application is very limited, and it is no longer a remedy recognised by physicians, having been superseded by others of greater certainty of action. Mixed with wine, it is said to take away the white specks which sometimes are seen in the eyes of horses and cows, "the pinne and web or any griefe out of the eyes of horse or cow, or any other beast, being squitted into the same with a syringe."

TRIBE IV.—MONARDEÆ.

Corolla bilabiate; upper lip vaulted. Stamens 2, parallel; anthers usually 1-celled, or with one of the cells separated from the other, and sterile.

GENUS VIII.—SALVIA. Linn.

Calyx bilabiate; upper lip entire or 3-toothed, the lower bifid. Corolla bilabiate; upper lip vaulted, entire or notched, the lower one spreading, 3-lobed; the middle lobe of lower lip often notched. Stamens 2; anther-cells separated by a long slender arched connective,

which gives the flower the appearance of having 4 stamens united into pairs; the longer branch of the connective with a fertile anther lobe, the shorter with one which is usually sterile and frequently minute and inconspicuous.

Herbs or undershrubs of various habit, with the flowers generally showy; bracts sometimes brightly coloured.

The derivation of the name of this genus is from the word "Salvus," well or in good health, because it was esteemed capable of healing various diseases.

SPECIES I.—**SALVIA VERBENACA.** *Linn.*

PLATE MLVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLV. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1944.

S. Verbenaca, a. sinuata, Vis. Reich. fl. l. c. p. 30.

Herbaceous. Radical leaves longly stalked, ovate-oblong or oval-oblong, subobtusely, crenately-lobed or pinnatifid, with the lobes crenate-dentate; lowest pair of stem leaves shortly stalked; the other ones sessile, ovate or triangular-ovate, acute, doubly crenate-dentate or serrate-dentate; all rugose, subglabrous, generally hairy on the veins beneath. Bracts semicircular-ovate, cuspidate, cordate, at length reflexed, coloured towards the apex; all, except the lower ones, shorter than the calyx. Verticillasters subspicate; the lower whorls rather remote, commonly 6-flowered. Calyx campanulate; upper lip broad, flattish, recurved-concave towards the apex at the margins, with 3 very minute connivent spinous-apiculate teeth, the lower lip with 2 longer broadly-lanceolate spinous-acuminate teeth. Corolla not twice as long as the calyx, the tube without a ring of hairs inside; upper lip shorter than the tube, semielliptical in profile, with the curvature greater towards the apex, which is not glandular. Connective of the anthers, dilated posteriorly into a wing on each side. Style included within the upper lip of corolla.

In dry pastures, by roadsides, on banks and waste ground. Not uncommon in England. Rare in Scotland, where it occurs in the Queen's Park, Edinburgh, and on the coast of Fife, near Pettycur. Rare in Ireland, and confined to the south and middle of the island.

England, Scotland, Ireland. Perennial. Spring to Autumn.

Rootstock woody, one or many-headed. Radical leaves in a rosette, on stalks $1\frac{1}{2}$ to 4 inches long; lamina $1\frac{1}{2}$ to 4 inches, usually with 5 or 6 shallow blunt lobes on each side; rarely pinnatifid with obtuse or acute lobes, commonly cordate or subcordate at the base. Flowering

stem paniculately branched, 1 to 2 feet high. Stem leaves few, distant, shortly stalked, the upper ones sessile and generally cordate, or, more rarely, rounded at the base. Spikes at first dense, afterwards becoming rather lax. Bracts very broad, generally tinged with dull blue. Calyx about $\frac{1}{4}$ inch long, concave (outwards) above towards the apex, from the presence of two large shallow foveæ with prominent ribs. Corolla about $\frac{3}{8}$ inch long, dull purplish blue, the limb very small. Nucleus roundish ovoid, compressed, plano-convex, dark brown, very finely shagreened. Plant dark green, subglabrous, except the veins and margins of the leaves, which are hairy; the upper part of the stem more densely hairy, with simple hairs intermixed with gland-tipped ones, some of which also occur on the calyx.

Wild English Clary.

French, *Sauge verveine*. German, *Muskateller Salbei*.

Dr. Prior says that "the English name of this plant Clary originates in *clarea*; a word formed from *clarus*, clear. This word Clary affords a curious instance of medical research. It was solved by the apothecaries into clear eye, translated—"Oculus Christi—Godes eie and See bright." The seeds, if soaked in water for a few minutes, form a thick mucilage, which has been supposed to be efficacious in removing particles of dust, &c., from the eyes. Gerarde says, "it purgeth them exceedingly from waterish humorous rednesse, inflammation, and divers other maladies, or all that happen unto the eies, and takes away the paine and smarting thereof, especially being put into the eies one seed at a time and no more." He tells us that "it grows wild in divers barren places, especially in the fields of Holborne neare unto Graye's Inn, in the highway by the end of a bricke wall." In some parts of the country clary flowers are made into a wine, which is liked by the people of the district.

SPECIES II.—**SALVIA CLANDESTINA.** *Linn. (?)*

PLATE MLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLV. Fig. 3.

Billot, Fl. Gall. et Germ. exsicc. Nos. 1296 and 1945.

S. Verbenaca, var. *multifida*, *Vis. Reich. fil. l. c. p. 30.*

S. horminoides, *Pourr. Gren. & Godr. Fl. de Fr. Vol. II. p. 673.*

S. pallidiflora, *St. Amans; Bor. Fl. du Centre de Fr. ed. iii. Vol. II. p. 522.*

S. multifida, *Sibth. & Sm. Prod. Fl. Græc. Vol. I. p. 16.*

S. præcox, *Savi, Fl. Pis. Vol. I. p. 22.*

Herbaceous. Radical leaves longly stalked, ovate-oblong or oval-oblong, subobtusely, deeply crenately lobed or pinnatifid, with the lobes crenate-dentate; lowest pair of stem leaves shortly stalked; upper ones sessile, oblong-ovate or triangular-ovate, acute, doubly crenate-serrate or inciso-serrate; all rugose, subglabrous, generally hairy on the veins beneath. Bracts semicircular-ovate, cuspidate, cordate, at length reflexed, coloured towards the apex; all, except the lower ones, shorter than the calyx. Verticillasters subspicate, the lower whorls rather

remote, commonly 6-flowered. Calyx campanulate; upper lip broad, flattish, recurved-concave towards the apex at the margins, with 3 very minute "spreading" (Gren. & Godr.) teeth, nearly destitute of a spinous mucro; lower lip with 2 longer, broadly lanceolate, spinous, acuminate teeth. Corolla twice as long as the calyx; tube without a ring of hairs inside; upper lip longer than the tube, nearly semi-circular in profile, with the curvature greater towards the apex, not glandular towards the apex. Connective of the anthers, dilated posteriorly into a wing on each side. Style at length slightly exerted beyond the upper lip of the corolla.

On dry banks. Guernsey, Mr. Borrer. Professor Babington states that it has occurred at the Lizard Point, Cornwall, and in Jersey.

England? Channel Islands. Perennial. Spring, and again in Autumn.

Very like *S. Verbenaca*, but smaller, less erect, and with the leaves generally much more deeply pinnatifid, and with the lobes more directed towards the point of the leaf; the outline of the leaf is generally narrower, the base less cordate; the upper part of the stem more hairy; the upper calyx teeth smaller and less distinctly spinous-lipped. The great difference, however, lies in the upper lip of the corolla, which, both in colour and shape, resembles that of *S. pratensis* rather than that of *S. Verbenaca*, though it is only about half the size, the tube and limb together not being more than $\frac{1}{2}$ inch long.

All the specimens I have seen from Cornwall labelled "*S. clandestina*" are only *S. Verbenaca*, to which also a plant from Vale Church, Guernsey, must be referred. About Pontac and St. Clements, in Jersey, where (in the *Primitiæ Floræ Sarnicæ*) *S. clandestina* is said to grow, I could find nothing but *S. Verbenaca*, after a most careful search. The true plant is contained in Mr. Borrer's Herbarium at Kew, labelled "*Guernsey*," in Mr. Borrer's own handwriting.

Small-flowered Clary.

French, *Sauge clandestine*. German, *Kleine Salbei*.

SPECIES III.—**SALVIA PRATENSIS.** Linn.

PLATE MLVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLII.

Billot, Fl. Gall. et Germ. Exsicc. No. 607.

Herbaceous. Radical leaves longly stalked, oblong-ovate or triangular-ovate, subobtusely or acutely, crenately lobed or doubly crenate-dentate, rarely inciso-pinnatifid; lowest pair of stem leaves stalked, the upper pair much smaller, sessile, more or less triangular, acute,

irregularly dentate; all rugose, subglabrous, generally hairy on the veins beneath. Bracts ovate, acuminate, subcordate, green or more or less coloured, shorter than the calyx, at length reflexed. Verticillasters sub-spicate, the lower whorls rather remote, commonly 4-flowered. Calyx campanulate; the upper lip broad, flatish, recurved concave towards the apex at the margins, with 3 very minute connivent, spinous-mucronate teeth; lower lip with 2 longer ovate-lanceolate, spinous-acuminate teeth. Corolla more than twice as long as the calyx, the tube without a ring of hairs inside; upper lip twice as long as the tube, nearly semicircular in profile, with the curvature nearly equal throughout, glandular towards the apex. Connective of the anthers, dilated posteriorly into a wing on each side. Style much exerted beyond the upper lip of the corolla.

In fields and by roadsides. Very rare, occurring only near Cobham in Kent; and near Middleton Stoney in Oxfordshire. It has also been reported from the Isle of Wight, but this station seems doubtful.

England. Perennial. Spring, Summer.

Stem 1 to 3 feet high. Radical leaves with the stalks 1 to 4 inches long; lamina 2 to 6 inches, very variable in breadth and in the depth of marginal lobing; stem leaves often reduced to a single pair or 2 pairs, rarely more than 3 pairs. Flowers 1 inch long, bright blue. Plant subglabrous, dark green, the stem hairy, the upper part, calyx, and apex of the upper lip of the corolla clothed with gland-tipped hairs.

Meadow Clary.

French, *Sauge des Prés.* German, *Wiesen-Salbei.*

TRIBE V.—STACHYDEÆ.

Corolla bilabiate; upper lip vaulted. Stamens 4, parallel, the outer or lower pair the longer; anthers 2-celled, the cells contiguous.

GENUS IX.—PRUNELLA.* *Linn.*

Calyx short, bilabiate; the upper lip flat, truncate, with 3 short teeth, without a scale or fold at the base; lower lip deeply bifid; throat not closed with hairs. Corolla bilabiate; the upper lip erect, concave, broad, entire or slightly notched; lower lip spreading, 3-lobed. Stamens 4; filaments parallel, approximate under the upper lip of

* Sometimes written *Brunella*.

the corolla, furnished with a pointed appendage beneath the anthers; anther-cells distinct, divaricate, each cell opening by a separate longitudinal cleft. Nucules sessile, smooth.

Herbs with entire or pinnatifid leaves, the floral ones bractlike, imbricated. Verticillasters few-flowered, arranged in a dense terminal spike.

The name of this genus is derived from *Pruna*, a burning coal, because it heals the effects of a burn, or, as some authors say, from the German *die Bräune*, sore throat, from its efficacy in such cases.

SPECIES I.—**PRUNELLA VULGARIS.** *Linn.*

PLATE MLIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXIII. Fig. 2.

Billot. Fl. Gall. et Germ. Exsicc. No. 2902.

Leaves (except occasionally the uppermost pair) all shortly stalked, ovate or oblong-ovate or oblong-lanceolate, entire, repand or serrate or (rarely) the upper ones pinnatifid, the uppermost pair generally immediately below the spike. Upper lip of the calyx with 3 very minute teeth, which are frequently mucronate, from the ribs being excurrent; lower lip of 2 lanceolate acuminate teeth divided half way down the lip, terminating in weak spines. Corolla scarcely twice as long as the calyx. Longer pair of filaments with a straight subulate point below the anther.

In meadows, pastures, hedgebanks, and cultivated ground, heaths, and open woods. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Rootstock shortly creeping. Central stem erect or ascending, 3 to 18 inches high; lateral stems generally decumbent; branches spreading, or in small specimens reduced to fascicles of leaves. Leaves with the lamina longer than the petiole, $\frac{3}{4}$ to 3 inches long, generally subacute, but sometimes obtuse; in British specimens nearly entire or toothed, but in continental ones sometimes pinnatifid. Spikes terminating the stem and branches, oblong-cylindrical, very dense, $\frac{3}{4}$ to 4 inches long. Bracts ovate-reniform, cuspidate, green with purple margins, ciliated with pointed hairs. Calyx $\frac{1}{3}$ inch long, purple (pale green in white flowered varieties); the upper teeth very short; all ciliated with pointed hairs. Corolla $\frac{1}{2}$ to $\frac{5}{8}$ inch long, dull purplish blue, rarely white. Nucules oblong-ovoid, compressed-trigonous, yellowish brown, shining, very finely shagreened. Plant thinly clothed with jointed hairs, deep green, the leaves paler below, and, as well as the stems, frequently tinged with purple.

Self-heal.

French, *Brunelle commune*. German, *Gemeine Brunelle*.

Dr. Prior tells us that this plant has been called *Slough-heal*, which he says is a supposed but mistaken correction of *self-heal*, which name really expresses the general belief about it. It meant that with which one may cure oneself without the help of a surgeon; to which effect Ruellius quotes a French proverb, that "No one wants a surgeon who keeps Prunelle."

GENUS X.—SCUTELLARIA. *Linn.*

Calyx short, bilabiate, closed after flowering; upper lip entire, with an elevated transverse curved scale or fold at the base, lower lip entire; throat not closed with hairs. Corolla bilabiate; the upper lip erect, concave, 3-toothed; the lower lip spreading, entire, or notched, rarely the 2 lateral divisions free equally from either lip or combined with the lower instead of the upper. Stamens 4; filaments parallel, approximate under the upper lip of the corolla, without an appendage beneath the anthers; anther-cells divaricate, opening by a longitudinal cleft common to the 2 cells. Nucules stipitate, tuberculate.

Herbs, rarely undershrubs, with the flowers generally in pairs in the axils of leaflike bracts.

The name of this genus is attributed to the resemblance of the calyx to a sort of cup with a lid to it, called *Scutella*, or perhaps to a cap or head-covering.

SPECIES I.—SCUTELLARIA GALERICULATA. *Linn.*

PLATE MLX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLVI. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1303.

Stem erect or ascending, rather stout. Leaves subsessile or very shortly stalked, oblong-lanceolate or oblong-triangular, cordate, sub-acute, crenate-serrate or crenate throughout. Bracts undistinguishable from the leaves. Flowers solitary in the axils of the bracts, so as to be in pairs, secund, very shortly stalked, arranged in a very lax raceme. Calyx pubescent, without glands. Tube of the corolla slender, slightly curved above the base, insensibly dilated upwards, 3 or 4 times as long as the calyx, very finely pubescent.

On the banks of lakes, streams, and ditches, and in swampy ground. Rather frequent in England. Rare in Scotland, and not attaining the extreme north. Widely distributed, but not frequent, in Ireland.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock extensively creeping. Stem 6 inches to 2 feet high, generally erect, paniculately branched, or in small specimens nearly simple. Leaves with the petiole $\frac{1}{8}$ to $\frac{1}{4}$ inch long; the lamina $\frac{3}{4}$ to 3 inches long. Flowers commencing about the middle of the stem or even lower, in the axils of bracts, which are undistinguishable from the leaves, except in that they become slightly smaller and with shorter stalks towards the extremity of the stem. Pedicels generally shorter than the calyx. Calyx campanulate, obsoletely 2-lipped, with the lips truncate, and a large prominent scale-like fold a little above the base on the upper side. Corolla about $\frac{3}{4}$ inch long, purplish blue: the lips very short; the lower lip with 3 shallow lobes, variegated with white and purple in the centre. Stamens and style included within the slightly arched upper lip of the corolla. Fruiting calyx somewhat resembling the involucre of *Hymenophyllum*. Nucules supported on a carpophore, roundish-ovoid, compressed, yellowish brown, closely muricated with blunt tubercles. Plant subglabrous, with the angles of the stem, leaves, and flowering calyx finely pubescent, sometimes rather thickly so.

Common Skull-cap.

French, *Soque tertinaire*. German, *Gemeine Schildträger*.

Dr. Withering tells us that "when the blossom falls off, the cup closes upon the seeds, which when ripe, being still smaller than the cup, could not possibly escape, or overcome its elastic force, and must consequently remain in useless confinement. But nature, ever fruitful of resources, finds a method to discharge them. The cup being dry, divides into two distinct parts, when the seeds, already detached from the receptacle, fall to the ground."

SPECIES II.—**SCUTELLARIA MINOR.** *Linn.*

PLATE MLXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCLVI. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 2901.

Stem erect or decumbent, wiry. Leaves sessile or very shortly stalked, oblong-lanceolate or oblong-triangular, subcordate, subobtusely, entire or with 2 or 3 rather large blunt teeth close to the base. Bracts undistinguishable from the leaves. Flowers solitary in the axils of the bracts, so as to be in pairs, secund, shortly stalked, arranged in a lax raceme. Calyx pubescent, without glands. Tube of the corolla rather slender, nearly straight, slightly dilated upwards, about 3 times as long as the calyx, very finely pubescent.

On boggy heaths, and by the sides of ditches, and in damp woods. Rather rare, but widely distributed throughout England. In Scotland confined to the western counties, as far north as Dumbarton and Lanark. In Ireland it is principally found in the west of the island.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock very slender, extensively creeping. Stem 2 to 6 inches high, unless when growing among long grass, in which case it sometimes attains to 1 foot or more in length. Leaves $\frac{1}{4}$ to 1 inch long, the lower ones broader than the others, and often with a single tooth at the base, thus showing a tendency to become hastate. Pedicels generally about as long as the calyx, which is rather shorter in proportion to its breadth than that of *S. galericulata*. Flowers about $\frac{3}{4}$ inch long, pale purplish pink; lower lip of the corolla variegated with white and rose colour. Nucules similar to those of *S. galericulata*, but smaller. Plant subglabrous, with the angles of the stem, leaves, and flowering calyx finely pubescent.

Lesser Skull-cap.

French, *Toque naine*. German, *kleiner Schildträger*.

GENUS XI.—**MELITTIS**. Linn.

Calyx short, subbilabiate, membranous, enlarging in fruit; upper lip broad, with 3 very short teeth; lower lip with 2 large teeth; all the teeth erect, and without spinous points. Corolla bilabiate; upper lip erect, orbicular, slightly vaulted; lower lip spreading, 3-lobed. Stamens 4; filaments parallel under the upper lip of the corolla; anthers approximate in pairs; cells divaricate, those of each pair of anthers forming a cross, each cell opening by a separate longitudinal cleft. Nucules smooth, rounded at the summit.

An herb with large showy flowers, solitary or 2 or 3 together in the axils of bracts, which are undistinguishable from the leaves.

The origin of the name of this genus is the Greek word *μέλιττα* (*melitta*), a bee, on account of the honey it produces, or from *mel*, honey.

SPECIES I.—**MELITTIS MELISSOPHYLLUM**. Linn.

PLATES MLXII. MLXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCII. Fig. 1.

Billot. Fl. Gall. et Germ. Exsicc. No. 434.

The only known species.

In woods and bushy places. Rather rare, and confined to the south-western counties; extending east to Sussex and mainland Hants, and north to Somerset, Gloucester, and Cardigan; reported also from Glamorgan and Pembroke, but its occurrence in these two counties is not (so far as I am aware) confirmed by recent authorities.

England. Perennial. Spring.

Rootstock somewhat woody, shortly creeping, with numerous wiry fibres. Stem erect, 8 inches to 2 feet high. Leaves rather shortly stalked, ovate or oval-ovate or elliptical-ovate, rounded at the base, tapering towards the apex, coarsely crenate-serrate. Bracts undistinguishable from the leaves. Flowers solitary or in pairs or threes in the axils of the bracts, shortly stalked, secund. Pedicels shorter than the calyx. Calyx pale green, $\frac{3}{8}$ inch long, campanulate, 2-lipped; the upper lip entire or with 2 or 3 teeth, the lower lip with 2 teeth. Corolla $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long, the tube scarcely dilated upwards; limb spreading, the lower lip longer than the upper, but shorter than the tube; the upper lip slightly concave; the colour pink or cream colour externally, the inside white or cream colour, the lower lip blotched with purplish red. Plant deep green, the stem pubescent with long spreading hairs, the leaves very thinly hairy above, glabrous beneath, except on the veins. Leaves somewhat like those of *Mercurialis perennis*.

M. grandiflora of Smith is only a slight variation with differently coloured flowers. The number of lobes in the calyx is liable to vary even on the same individual.

Bastard Balm.

French, *Mélisse des bois*. German, *melissenblüttrige Biensauge*.

This plant is elegant, and is occasionally admitted into gardens, though of an unpleasant smell when fresh. When dried it becomes very fragrant.

GENUS XII.—**MARRUBIUM.** *Linn.*

Calyx tubular, scarcely enlarging in fruit, nearly regular, not bilabiate; limb ascending or at length spreading, of 5 teeth, spinous-pointed, often with 5 smaller intermediate ones. Corolla bilabiate; tube short; upper lip erect, nearly flat, entire or shortly bifid, usually longer than the lower; lower lip spreading, 3-cleft, middle lobe broader, notched. Stamens 4; filaments subparallel under the upper side of the corolla-tube, but not reaching to the upper lip; anther-cells joined at the apex and divergent in a straight line, opening by a common longitudinal slit. Nucleus abruptly truncate at the apex.

Herbs often woolly, with rugose leaves, which are usually rounded or wedgeshaped at the base, mostly serrate. Bracts similar to the leaves. Verticillasters many-flowered, often spherical, with subulate herbaceous bracts.

This genus of plants, according to one author, is named from a town in Italy where it abounds. Another gives us the words *maro*, bitter, and *rube*, a Celtic name for a root, as the origin.

SPECIES I.—**MARRUBIUM VULGARE.** *Linn.*

PLATE MLXIV.

*Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXIV. Fig. 1.**Billot, Fl. Gall. et Germ. Exsicc. No. 2518.*

Leaves roundish-ovate or rhombic-ovate, strongly and irregularly crenate or crenate-serrate, rugose, hoary woolly below, especially when young. Verticillasters many-flowered, subglobular. Calyx woolly with 10 ascending-spreading subulate spinous teeth, hooked at the apex, the alternate ones smaller. Upper lip of the corolla strapshaped, much longer than the lower, bifid at the apex, the division not reaching half way down the lip.

In waste places. Rare, and probably not native in many of its stations. Generally distributed in the southern half of England, extending in Scotland to the counties of Haddington and Fife, and even occurring in Moray, though there is little doubt that it is not native there. Rare in Ireland, and confined to the south and middle of the island.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Stem much branched from the base, 9 to 18 inches high, densely cottony, especially when young. Leaves shortly stalked, lamina $\frac{3}{4}$ to $1\frac{1}{2}$ inch long. Flowers $\frac{1}{2}$ inch long, white. Nucules very dark brown, obovate-oblong, subtrigonus, truncate, rather finely shagreened with small points. Plant hairy, white, the upper side of the leaves generally green, but sometimes hoary like the rest of the plant.

White Horehound.

French, *Marrube commun*, German, *gemeiner Andorn*.

The etymology of the common name of this plant is given by Dr. Prior as coming from *hara hara*, the ancient Saxon from *hara*, a hare, and *hara*, a hound. In one MS. he says the reading is *hara-honey*, hare honey. The name may be a corruption of the Latin *Urtica*, the plant having been regarded as of great efficacy in certain diseases of the excretions. It is a well known old domestic remedy for coughs and other pectoral complaints, but is now seldom used in medicine by regular practitioners. In large doses it acts as a laxative and diuretic, in small doses as a tonic and stimulant. An infusion of a handful of the leaves is a good remedy for coughs. Syrup of Horehound and candied Horehound are often used for the same purpose. Linnaeus records an instance in which salivation, caused by the use of mercurial medicines, was removed by the administration of this infusion after every other remedy had failed. The plant should be gathered when in flower. It may be used in the dry state, but is certainly less active than when fresh.

GENUS XIII.—BALLOTA. *Linn.*

Calyx funnelshaped-salvershaped, often enlarging in fruit, regular, not bilabiate; limb at length spreading, with 5 teeth, often with 5

smaller intermediate ones, or sometimes 6 to 20 teeth, or merely crenate at the margins; teeth often spinous-pointed. Corolla bilabiate; tube rather short; upper lip erect, oblong, slightly vaulted, notched at the apex, often longer than the lower lip; lower lip spreading, 3-cleft, the middle lobe notched. Stamens 4; filaments subparallel under the upper lip of the corolla; anthers approximate in pairs; cells diverging in a nearly straight line, distinct, each cell opening by a separate longitudinal cleft. Nucules rounded at the apex.

Herbs with rugose leaves, often cordate at the base, entire or crenate. Bracts similar to the leaves. Verticillasters usually many-flowered, often with spinelike bracteoles.

The name of this genus is derived from a Greek word, βάλλω (*ballo*), thrown away, worthless.

SPECIES I.—**BALLOTA NIGRA.** *Linn.*

PLATE MLXV. MLXVI.

Leaves roundish-ovate or rhombic-ovate, crenate-serrate or doubly crenate-serrate or serrate. Bracteoles long, soft, linear-subulate. Calyx slightly enlarging in fruit, the limb with 5 equal ovate or lanceolate, spinous-mucronate or spinous teeth. Corolla tube scarcely exceeding the calyx. Plant more or less pubescent.

Var. *α*, *fœtida.* *Koch.*

PLATE MLXV.

Reich. Ic. Fl. Germ. et. Helv. Vol. XVIII. Tab. MCCXVIII. Figs. 1 & 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2900.

B. fœtida, *Lam.* *Fries*, Nov. Fl. Succ. ed. ii. p. 195. *Bab.* Man. Brit. Bot. ed. v. p. 262. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 695.

B. nigra, *Sm.* Eng. Bot. No. 635.

Calyx-teeth ovate or roundish-ovate, cuspidate or abruptly acuminate into short spinous teeth, or merely with mucronate points.

Var. *β*, *ruderalis.* *Koch.*

PLATE MLXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXVIII. Fig. 134.

B. ruderalis, '*Svensk*,' *Fries*, Fl. Hall. p. 101. and Nov. Fl. Succ. ed. ii. p. 194. *Bab.* Man. Brit. Bot. p. 262.

Calyx-teeth lanceolate, gradually acuminate into long spinous teeth.

In waste places and hedge-banks. Common, and generally distributed in England. Scarce in Scotland, and not extending north of the shores

of the Forth and Clyde, except as an introduced plant; as such it is reported by Dr. Dickie from Keig and Castle Forbes, and by the Rev. Dr. G. Gordon from Moray. Rare in Ireland, and chiefly in the south and east.

Of var. β I have seen characteristic specimens, only from 'the lane leading from Briardam Barn to Hartley,' Northumberland, collected by the late Mr. J. Storey: but forms of var. α approaching it occur in many parts of the country. Prof. Babington says it is common in Herefordshire, but the Rev. W. H. Purchas has not been able to find it there.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Stems 1 to 3 feet high (or even more, when growing in hedges), bluntly quadrangular, branched, usually flexuous. Leaves of the barren shoots and those at the base of the flowering stem on long stalks 1 to 2 inches long, roundish, cordate, obtuse; those on the rest of the flowering stem and the bracts more or less rhomboidal-ovate, roundish or wedgeshaped at the base, often subacute, variable in the dentition of the margins. Verticillasters occupying a great portion of the stem, many-flowered; cymes shortly stalked, with the lateral branches rather elongate, the flowers themselves with scarcely any pedicels. Calyx about $\frac{3}{8}$ inch long in flower, only slightly enlarged in fruit; tube cylindrical and gradually enlarged upwards, with 10 very prominent hairy ribs; limb more or less spreading, much shorter than the tube, with elevated anastomosing veins, very variable in the shape of the teeth, and the length of the spines formed by the excurrent midribs of the sepals. Corolla about $\frac{1}{2}$ to $\frac{3}{4}$ inch long, purplish rose, variegated with white on the lower lip, hairy on the outside and on the inside of the upper lip, which is erect, nearly entire, slightly vaulted; lower lip 3-lobed, with the middle lobe largest and deeply notched or obcordate. Plant dull dark green, sometimes hoary, from the quantity of pubescence, which is very variable.

Var. β is certainly inseparable even as a sub-species from var. α ; the form of the calyx-teeth is liable to variation even in different flowers from the same root.

Black Horehound.

French, *Ballotte noire*. German, *schwarzer Gottesvergers*.

This plant is used in London as a cattle medicine, and in ancient times it had a reputation in human diseases, but its virtues are very doubtful.

GENUS XIV.—STACHYS. *Lim.* (*Benth.*)

Calyx tubular, scarcely enlarging in fruit, nearly regular; limb ascending or at length spreading, with 5 spinous-pointed teeth. Corolla

bilabiate; tube short or elongated; upper lip generally shorter than the lower, upper lip erect, vaulted; lower lip spreading; 3-lobed, the middle lobe larger, entire or notched. Stamens 4; filaments subparallel under the upper lip of the corolla; anthers approximate in pairs; anther-cells joined at the apex and divergent in a nearly straight line, opening by a common longitudinal cleft, rarely subparallel. Nucules rounded at the apex.

Herbs or undershrubs of various habit.

The name of this genus of plants comes from the Greek word *στάχυς* (*stachus*), a spike, from the form of its stalk and leaves.

SUB-GENUS I.—BETONICA. *Linn.*

Anther-cells subparallel. Flowers crowded into short terminal spikes; all the verticillasters except the lowest with the bracts small, not resembling the leaves.

SPECIES I.—**STACHYS BETONICA.** *Benth.*

PLATE MLXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. II. Tab. MCCXVII.

Billot, Fl. Gall. et Germ. Exsicc. No. 1745.

Betonica officinalis, *Linn. Sm.* Eng. Bot. No. 1142. *Hook. & Arn.* Brit. Fl. ed. viii. p. 334. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 654. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 695. *Fries*, Summ. Veg. Scand. p. 14.

Rootstock somewhat woody, without elongated creeping stolons. Stem wiry, erect (rarely decumbent), simple or rarely with a single pair of branches. Radical leaves in tufts, on long stalks, oblong or triangular-oblong, cordate, obtuse, crenate; stem leaves sessile, oblong or strapshaped-oblong, acute, crenate-serrate or serrate; all rugose. Lowest pair of bracts resembling the leaves; bracteoles lanceolate-acuminate, as long as the calyx. Verticillasters contracted into an oblong spike, with the lowest verticillaster often separate. Calyx glabrous or subglabrous, except at the throat; teeth as long as the tube, deltoid, abruptly acuminate into subulate, spinescent. Corolla tube usually twice as long as the calyx, much longer than all the bracts, except the pair at the base of the spike. Plant green, hairy or subglabrous.

On heaths, in woods, thickets, and by roadsides. Rather common, and generally distributed in England. Rare in Scotland, and not extending north of Dupplin and Dunkeld in Perthshire and the neighbourhood of Glasgow. Rather rare in Ireland, and not found in the north-west of the island.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Rootstock with shortly creeping horizontal branches terminating in tufts of leaves, which have the petiole often longer than the lamina, which is 1 to 3 inches long, more or less cordate at the base, obtuse. Flowering stems from immediately below the rosette of radical leaves; rather stout and rigid, 3 inches to 3 feet high, with few pairs of leaves, the uppermost pair distant from the spike and sometimes, but very rarely, with branches terminating in spikes in their axils. Stem leaves few, smaller and more parallel-sided than the radical leaves, becoming narrower, more acute, and with shorter stalks the higher they are placed on the stem. Spike 1 to 3 inches long; the pair of bracts at its base longer than the calyx, strap-shaped, deeply serrate, the other pairs of bracts much smaller and entire or nearly so. Calyx $\frac{3}{8}$ inch long. Corolla $\frac{3}{4}$ inch long, dark purplish red, hairy externally; upper lip erect, very slightly concave internally; lower lip 3-lobed, with the central lobe round, crenate or sometimes emarginate; which last form, however, has not been observed in Britain, either by Professor Babington or by myself. Plant deep green, more or less clothed with hairs; the stem and peduncles hairy with adpressed-deflexed hairs, but both on the stem and leaves the degree of pubescence is very various.

Mr. Charles Bayley has sent me from Cornwall a dwarf form with decumbent stems.

Wood Betony.

French, *Épiaire des champs*. German, *Feldziest*.

The common name of this plant, according to Dr. Prior, is said by Pliny to have been first called *Vettonica*, from the Vettones, a people of Spain; but modern authors treat this derivation with great contempt, and resolve the word into the primitive or Celtic form of *bœu* (a head), and *bœu* (good), it being good for complaints in the head. An old proverb says, "Sell your coat and buy betony," expressing the high admiration in which our forefathers held this plant. "He has as many virtues as betony," is the saying of the Spaniard, with whom the herb was in great repute at one time. In addition to its medicinal virtues, the betony was formerly supposed to be endowed with great power against evil spirits. On this account it was carefully planted in churchyards: and hung round the neck as an amulet or charm, sanctifying, as Erasmus tells us, "those that carried it about them," and being also "good against fearful visions." Culpepper, in his "Herbal," gives us a long list of the excellences of this plant, saying, "These are some of the many virtues Antony Musa, an expert physician (for it was not the practice of Octavius Caesar to keep fools about him), appropriates to betony. It is a very precious herb, that is certain, and most fitting to be kept in a man's house, both in syrup, conserve, oyl, oylment, and plaister." It was largely cultivated in the physic gardens both of the apothecaries and the monasteries, and may still be found growing in the ground about the sites of these ancient buildings. Even at this date there are differences of opinion as to its real virtues, and it is not without its adherents. It enters into the composition of a certain kind of snuff, known as "cephalic snuff," said to be useful in headache.

SUB-GENUS II.—EU-STACHYS. (*Stachys*. *Linn.*)

Anther-cells widely divaricate. Flowers in elongated interrupted spikes, or spikelike racemes. Bracts of all the verticillasters resembling the leaves, or at least those of several of the lowest whorls.

SPECIES II.—**STACHYS GERMANICA.** *Linn.*

PLATE MLXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCX. Figs. 1 & 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 612.

Rootstock somewhat woody, without elongated creeping stolons. Stem stout, erect, simple or nearly so. Radical leaves in tufts, on long stalks, elliptical- or ovate-oblong, cordate, crenate; upper stem leaves sessile, oblong-lanceolate, serrate or crenate-serate; all acute, greenish above and grey beneath, rugose. Lower (or all the) pairs of bracts resembling the leaves; bracteoles strapshaped-subulate, as long as the calyx. Verticillasters in an elongated interrupted spike. Calyx densely woolly, oblique at the mouth; teeth half as long as the tube, deltoid, spinous-awned. Corolla tube not much exceeding the calyx-teeth, shorter than most of the pairs of bracts. Nucules dim, finely shagreened. Plant grey, densely clothed with silky hairs, especially on the stem, underside of the leaves, and calyx.

In pastures and by roadsides on chalky soil. Very rare. Lutton Park, Bedfordshire; in several places in Norfolk; by the roadside between Hoperofts Holt and Sturgess Castle, between Oxford and Banbury, where it was collected by Dr. Lloyd in 1835, and I have seen no specimens of a later date from that county. In 1857 I found it sparingly in a field by the side of Darent Wood, Kent, but the field has since been ploughed up, and the plant has disappeared. It has occurred in many other counties, but probably planted, and in some cases *Stachys lanata*, which is still more frequently cultivated, has been mistaken for it.

England. Perennial or Biennial. Late Summer, Autumn.

Rootstock branched, short-lived, but generally flowering more than once. Radical leaves in tufts from the crowns of the rootstock, on stalks usually as long as the lamina, which is from 2 to 6 inches. Flowering stem 18 inches to 3 feet high or more, with a few pairs of branches in luxuriant specimens. Verticillasters many-flowered, dense. Calyx about $\frac{1}{4}$ inch long, the upper side longer than the under. Corolla about $\frac{1}{2}$ inch long, pale purplish rose, spotted on the lower lip, pubes-

cent on the outside. Nucules subtrigonus-ovoid, fuscous, very finely shagreened.

Downy Woundwort.

French, *Épiaire d'Allemagne*. German, *Deutscher Ziest*.

SPECIES III.—**STACHYS PALUSTRIS.** *Linn.*

PLATE MLXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCI. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1744.

Rootstock with very long creeping fleshy subterranean stolons. Stem stout, erect, simple or branched. Radical leaves not persistent at the time of flowering; stem leaves sessile or subsessile, oblong, lanceolate-oblong or strapshaped-oblong, abrupt or subcordate at the base, acute, crenate-serrate or serrate, green on both sides, not rugose. Lower pairs of bracts resembling the leaves; bracteoles strapshaped-subulate, not above one-fourth the length of the calyx. Verticillasters in a long rather lax spikelike raceme. Calyx not oblique, pubescent with long simple and short gland-tipped hairs; teeth as long as the tube, triangular-subulate, spinous-pointed. Corolla tube scarcely exceeding the calyx teeth, shorter than the undermost of the pairs of bracts. Nucules shining, finely punctured. Plant green, more or less thinly clothed with short rather stiff hairs.

By the sides of rivers and ditches, cultivated ground, and by roadsides. Common, and universally distributed.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock with very numerous white fleshy subterranean stolons, which creep in all directions. Stem quadrangular, 1 to 3 feet high, sometimes simple, sometimes with numerous erect branches. Leaves 2 to 5 inches long, generally nearly sessile, but sometimes with a stalk shorter than their own breadth, regularly serrate, with the teeth blunt or acute. Whorls 6 to 10-flowered. Calyx about $\frac{3}{4}$ inch long, bell-shaped, often tinged with purple; limb spreading. Corolla about $\frac{3}{4}$ inch long, purplish rose; lower lip variegated with white. Nucules fuscous-brown, ovoid, subtriquetrous.

Marsh Woundwort.

French, *Épiaire des marais*. German, *Sumpf Ziest*.

This plant formerly had a great reputation as a vulnerary, being strongly recommended by Gerarde, in his Herbal. He records that, being in Kent visiting a patient, he accidentally heard of a countryman who had cut himself badly with a scythe, and had bound a quantity of this herb, bruised with grease, and "laid upon in manner of a pultesse" over the wound, which healed in a week, though it would "have

required forty daies with balsam itself." The old herbalist says, "I saw the wound, and offered to heal the same for charitie, which he refused, saying that I could not heal it so well as himself—a clownish answer, I confesse, without any thanks for my good-will; whereupon I have named it 'Clown's Woundwort.'" Gerarde himself, according to his own account, cured afterwards "many grievous wounds, and some mortale, with the same herbe." The plant was regarded as a valuable remedy in such cases, however, long before Gerarde's time, having been long known among country people as All-heal and Woundwort. The Welsh have an ancient name for it, bearing the same signification. The surgical value of the Marsh Woundwort may be doubted, though it is certainly somewhat astringent, but it claims a place among our useful plants for its edible roots. These are tuberous, and attain a considerable size; when boiled they form a wholesome and nutritious food, rather agreeable in flavour. The young shoots of the plants may likewise be eaten, being cooked like asparagus; but though pleasant in taste, they leave a strong and disagreeable smell, which would prevent their being relished by most persons.

(?) HYBRID.—**STACHYS SYLVATICI-PALUSTRIS.** *Wirtg.*

PLATE MLXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXV.

Billot, Fl. Gall. et Germ. Exsicc. No. 2334.

S. ambigua, Sm. Eng. Bot. No. 2089. Koch, Syn. Fl. Germ. et Helv. ed. ii. p. 653.

Fries, Summ. Veg. Scand. p. 14. Reich. fil. l. c. p. 7.

S. palustris, β ambigua. Bab. Man. Brit. Bot. ed. v. p. 262. Hook. & Arn. Brit. Fl. ed. viii. p. 334.

S. palustris, γ, hybrida, Benth. in D.C. Prod. p. 740.

S. palustri-sylvatica, Schiede; Gren. & Godr. Fl. de Fr. Vol. II. p. 689.

Rootstock with very long creeping fleshy subterranean stolons. Stem stout, erect, branched or simple. Radical leaves not persistent till the time of flowering; stem leaves all distinctly stalked; petiole less than half the length of the lamina; lamina ovate or lanceolate or ovate-elliptical, cordate, crenate-serrate or serrate, green on both sides, not rugose. Lowest pairs of bracts resembling the leaves; bracteoles lanceolate-subulate, not exceeding the pedicels of the flowers. Verticillasters in a long lax spikelike raceme. Calyx not oblique, pubescent with long simple and short gland-tipped hairs; teeth triangular-subulate, spinous-pointed, as long as the tube. Corolla-tube longer than the calyx-teeth, shorter than the undermost pairs of bracts. Nucules always abortive. Plant green, sparingly hispid-pubescent, short with rather stiff hairs.

In cultivated ground and by roadsides. Rare, but widely distributed. I have seen it from the counties of Cornwall, Devon, Dorset, Surrey, Cambridge, Fife and Orkney. It has been reported from many other counties, but the subpeteolate forms of *S. palustris* are so often mistaken for it, that localities not confirmed by specimens cannot be relied upon.

England, Scotland, Ireland? Perennial. Late Summer, Autumn.

A very puzzling plant, which is most probably a hybrid between *S. palustris* and *S. sylvatica*, as it is not only intermediate between the two, but appears never to perfect its seeds, while the two supposed parents do so freely under similar conditions. On the other hand, this plant is common in Orkney, where *S. sylvatica* is very scarce, though *S. palustris* is most abundant. From *S. palustris* it differs in being a larger plant, with broader leaves, with the stalk as long as the breadth of the base of the lamina, the lateral margins of which are rounded and not nearly straight, and the base more cordate; the flowers are larger, the tube longer in proportion to the calyx, the colour considerably darker, the bracteoles are more minute, and the plant more hairy; in all which points it approximates towards *S. sylvatica*, which plant, however, has ovate acuminate leaves on stalks longer than the breadth of their base, and still darker flowers with a longer tube and smaller limb.

SPECIES IV. — **STACHYS SYLVATICA.** *Lin.*

PLATE MLXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXI. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No 2899.

Rootstock with long creeping fleshy subterranean stolons. Stem rather stout, erect, branched or simple. Radical leaves not persistent till the time of flowering; stem leaves all distinctly stalked; petiole of the lower leaves often as long as the lamina; lamina broadly ovate, cordate, acuminate, coarsely serrate or crenate-serrate; upper leaves narrower and with shorter stalks. Lowest bracts resembling the leaves; bracteoles very minute, shorter than the pedicels. Verticillasters in a long lax spike-like raceme. Calyx not oblique, sparingly pubescent with long simple and short gland-tipped hairs; teeth triangular-subulate, spinous-pointed, as long as the tube. Corolla tube nearly twice as long as the calyx-teeth, shorter than the undermost pair of bracts. Nucules rather dim, finely shagreened. Plant green, sparingly hispid-pubescent with long stiff hairs.

In woods, shady hedges, and by the sides of streams and ditches. Common, and universally distributed.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock extensively creeping, but less so than that of *S. palustris* or *S. sylvatici-palustris*. Stem 1 to 3 feet high, usually sparingly branched with ascending-incurved branches. Petioles of the lower leaves, particularly those of the autumnal barren rosettes, sometimes 5 or 6 inches long; lamina 2 to 5 inches. Raceme more lax than in

any of the preceding; verticillasters 6 to 12-flowered. Calyx scarcely $\frac{1}{4}$ inch long, less pubescent than in the two forms just mentioned. Corolla $\frac{3}{4}$ inch long, the tube longer, and the limb smaller than in *S. palustris* or *S. sylvatici-palustris*, dark reddish purple. Nucules fuscous, similar in size and shape to those of *S. palustris*, but roughened and not shining. Plant green, hispid with spreading hairs on the stem, petioles, and veins of the leaves beneath, thinly pubescent on the upper and under surfaces of the leaf.

Hedge Woundwort.

French, *Épiaire des bois*. German, *Wald Ziest*.

SPECIES V.—**STACHYS ARVENSIS.** *Lin.*

PLATE MLXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 66.

Rootstock none. Stem weak, decumbent, and often rooting at the base, then ascending or erect, branched. Leaves all distinctly stalked; petiole of the lower leaves often as long as the lamina; lamina ovate or oval, rounded or subcordate at the base, obtuse, crenate or crenate-serrate. Bracts resembling the leaves, but the upper ones subsessile; bracteoles absent. Verticillasters in a lax spikelike raceme. Calyx very slightly oblique, sparingly pubescent, with long simple hairs; teeth triangular, spinous-mucronate, rather shorter than the tube. Corolla tube shorter than the calyx-teeth, much shorter than the bracts. Nucules dim, finely shagreened. Plant green, sparingly hispid-pubescent with rather stiff hairs.

In cultivated ground and waste places. Rather common, and generally distributed in sandy and chalky soils, but very rare in the extreme north of Scotland, and indeed throughout the whole of that country; and in Ireland it is local.

England, Scotland, Ireland. Annual or Biennial. Spring to Autumn.

Stem 4 to 18 inches long, branched, especially towards the base, the flowering portion erect. Leaves $\frac{3}{4}$ to $1\frac{1}{2}$ inch long, 5-ribbed. Bracts similar to the leaves, the upper ones narrower and nearly sessile. Inflorescence occupying half the length of the stem; flowers 4 to 6 in a whorl, with the pedicels shorter than the calyx. Calyx $\frac{1}{2}$ inch long, slightly contracted at the throat when in fruit. Corolla very small, scarcely exceeding the calyx, pale purplish rose, variegated with white. Nucules shorter and more trigonous than in the other species, fuscous brown. Plant dull green, more or less hairy.

Corn Woundwort.

French, *Épiaire des champs*. German, *Feld Ziest*.

SPECIES VI.—*STACHYS ANNUA*. Linn.

PLATE MLXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXII. Fig. 2.*Billot, Fl. Gall. et Germ. Exsicc.* No. 833.

Rootstock none. Stem rather stiff, erect, not rooting at the base, much branched. Leaves all shortly stalked; petiole shorter than the lamina; lamina oblong-elliptical or oblong, attenuated towards the base and apex, subacute, crenate-serrate or serrate. Bracts resembling the leaves, but the upper ones subsessile; bracteoles minute, about as long as the pedicels. Verticillasters in a lax spikelike raceme. Calyx not oblique, densely pubescent with long simple hairs, intermixed with a few gland-tipped ones; teeth narrowly triangular-acuminated, spinous-pointed, rather shorter than the tube. Corolla tube much longer than the calyx-teeth, and about as long as the bracts, except the lowest whorls. Nucules dim, finely shagreened. Plant green, sparingly pubescent with short hairs.

In corn-fields or chalky soil. Very rare. It was found in August, 1830, by the late Mr. Joseph Woods in a field on the right-hand side of the road between Gadshill and Rochester; and in 1855 the late Mr. J. B. Salmon found it plentifully in corn-fields on the hill above Strood, which cannot be far from the other locality. In both cases it has probably been introduced with seed from the continent.

[England.] Perennial. Late Summer, Autumn.

Stem rather wiry, solitary, 4 to 12 inches high, downy, with short curled reflexed hairs. Leaves 1 to 2 inches long, somewhat 5-nerved. Bracts narrower than the leaves, the upper ones nearly sessile. Inflorescence occupying about half the stem; whorls distant, about 4-flowered. Calyx $\frac{1}{3}$ inch long, contracted at the throat and with the teeth curved upwards in fruit. Corolla $\frac{3}{4}$ inch long, ochreous, with the under lip yellow. Nucules suborbicular, compressed, fuscous brown. Plant with somewhat the habit of *Galeopsis angustifolia*; indeed, Mr. Salmon when he collected it believed it to be a pale-flowered variety of that plant.

Pale Annual Woundwort.

French, *Epiaire annuelle*. German, *Einjähriger Ziest*.

GENUS XV.—*GALEOPSIS*. Linn.

Calyx tubular, scarcely enlarging in fruit, not bilabiate; limb ascending or at length spreading, of 5 spinous-pointed teeth. Corolla bilabiate; tube long; upper lip erect, arched, deeply concave, entire

or slightly notched, about as long as the lower lip; lower lip 3-lobed, the middle lobe larger and entire or notched. Stamens 4; filaments subparallel under the upper lip of the corolla; anther-cells approximate in pairs, joined at the apex, and divergent in a straight line, each opening by a transverse curved slit. Nucules rounded at the apex.

Annual herbs, with ovate, oval or elliptical, serrate leaves. Bracts similar to the leaves. Verticillasters many-flowered; flowers often showy, rose, yellow, white or variegated.

The name of this genus of plants comes from the Greek words, γαλή (gale), a weasel, ὄψις (opsis), aspect; from the likeness of its flowers.

SPECIES I.—**GALEOPSIS LADANUM.** “*Linn.*” *Sm.*

PLATES MLXXIV. MLXXV.

Stem wiry, not thickened at the nodes, branched; branches ascending. Leaves oblong-elliptical or lanceolate or ovate-lanceolate, acute or subacute, serrate or nearly entire. Calyx teeth acuminate into subulate points. Upper lip of the corolla faintly notched. Plant more or less pubescent with rather stiff hairs, those on the stem deflexed; calyx more or less harshly pubescent, rarely with a few gland-tipped hairs amongst the others.

SUB-SPECIES I.—**Galeopsis angustifolia.** *Ehrh.*

PLATE MLXXIV.

G. Ladanum, *Auct. Angl. Bor. Fl. du centr. de la Fr.* ed. iii. Vol. II. p. 525.

Leaves lanceolate-elliptical or oblong-elliptical or strapshaped-lanceolate, wedge-shaped and gradually contracted into the petiole at the base, remotely and irregularly serrate (chiefly in the middle of each side) or nearly entire. Uppermost verticillasters contiguous. Outer bracteoles longer than the calyx. Tube of the corolla usually much longer than the calyx, often thrice as long.

Var. *α*, *genuina*.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXX. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1049.

G. angustifolia, *Reich. fil. l. c.* p. 17.

Calyx pubescent with short hairs or subglabrous; teeth scarcely as long as the tube. Plant sparingly pubescent or subglabrous, green.

Var. β , *canescens*.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXVIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. Nos. 1300 & 2341.

G. canescens, *Schultz.* *Reich.* fil. l. c. p. 17. *Boreau*, Fl. du centr. de la Fr. ed. iii. Vol. II. p. 79.

G. arvatica, *Jord.* *Billot*, Annot. p. 130.

Calyx pubescent with long white hairs; teeth equalling the tube. Plant copiously pubescent, greyish-green.

In corn-fields, waste places, and on shingle, particularly in chalky soils. Rather common, and generally distributed in England. Rare in Scotland, where I have seen it in the neighbourhood of Edinburgh only, viz., in Haddingtonshire and near Dalhousie, but it has been found in other localities to the south of the Forth and Clyde. The var. β appears to be the more frequent form in Kent and the other southern counties.

England, Scotland, Ireland? Annual. Late Summer, Autumn.

Stem usually red, 3 to 18 inches high, erect throughout or decumbent at the base, generally with numerous branches, becoming quite like a little bush when it grows after having been cut with the corn. Leaves 1 to 2 inches long, shortly stalked, gradually attenuated into the petiole, at length deflexed, nearly entire or with a few irregular teeth, about the middle. Verticillasters many-flowered. Bracteoles strap-shaped-lanceolate, slightly recurved, spinous-pointed, entire, the lower ones generally longer than the calyx. Calyx $\frac{3}{4}$ to $\frac{5}{8}$ inch long; teeth deltoid or triangular; in the former case suddenly, in the latter gradually, attenuated into spinous points, which are frequently of unequal length. Corolla $\frac{3}{4}$ to 1 inch long, bright rose (magenta), usually with four white blotches on the base of the lower lip, rarely wholly white, hairy externally. Nucules olive-brown, obovate-oblong, rounded at the apex, compressed, shagreened, variegated with pale scaly patches. Pubescence variable in quantity; calyx sometimes with gland-tipped hairs.

I am unable to draw any line between *G. canescens* of Schultz and the ordinary form; still less between *G. canescens*, *Sch.* and *G. arvatica*, *Jordin*.

Narrow-leaved Hemp Nettle.

French, *Galéope des champs*. German, *Ackerdaun*.

SUB-SPECIES II.—*G. intermedia*. *Vill.*

PLATE MLXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXVIII. Fig. 3. (?)

Billot, Fl. Gall. et Germ. Exsicc. No. 1299.

G. Ladanum, *Guss.* Pl. rares. p. 236. *Leon.* Herb. (!) *Fries*, Herb. Norm. (!) *Billot*. Exsicc. l. c. (!)

Leaves lanceolate or ovate-lanceolate, rounded and abruptly contracted into the petiole at the base, regularly serrate throughout. Verticillasters all separate. Outer bracteoles rather shorter than the calyx. Tube of the corolla usually not much exceeding the calyx, and never more than twice as long.

In wheat-fields. Very local. Known to occur only in Moray, where it was found in wheat-fields on the farm of Muirhead, Milton Brodie, in the parish of Alves, where it was first gathered by Mr. Wilson of Alves, among wheat, in July, 1833, and from whence the Rev. Dr. G. Gordon sent me specimens collected by Messrs. Naylor and Macdonald in August of last year (1866). Dr. Gordon has also sent me specimens collected by Dr. Innes of Forres, so that it appears not to be confined to a single locality.

Scotland. Annual. Late Summer, Autumn.

This comes very near *G. angustifolia*, but in general habit shows an approach to *G. ochroleuca*, except that it has not the soft velvety pubescence of that plant, and that the corolla is much smaller and has the upper lip much less deeply cleft. The leaves are always broader and more abrupt at the base than in *G. angustifolia*, and the margins are regularly toothed, usually with 5 or 6 teeth on each side; the bracteoles are shorter and more recurved; the calyx generally with gland-tipped hairs, which are more rarely present in *G. angustifolia*; the nucules are rather larger, more compressed, more enlarged upwards, and wholly opaque; and the plant, especially the calyx, is usually less pubescent; the colour of the flowers is similar.

Intermediate Hemp Nettle.

SPECIES II.—**GALEOPSIS OCHROLEUCA.** Lam.

PLATE MLXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXVIII. Fig. 1.

Billot. Fl. Gall. et Germ. Exsicc. No. 609.

G. dubia, *Leers*; *Gren. & Godr.* Fl. de Fr. Vol. II. p. 685. Bor. Fl. du centr. de la Fr. ed. iii. Vol. II. p. 526.

G. villosa, *Huds.* Sm. Eng. Bot. No. 2353.

Stem wiry, not thickened at the nodes, branched; branches ascending. Leaves lanceolate or ovate-lanceolate, acute or subacute, serrate. Outer bracteoles rather shorter than the calyx. Calyx teeth triangular, spinous-pointed; upper lip of the corolla deeply notched. Tube three or four times as long as the calyx. Plant velvety-pubescent, with short hairs, those on the stem deflexed and intermixed with gland-tipped hairs; calyx densely velvety-pubescent, and with numerous gland-tipped hairs.

In corn-fields on sandy soil. Rare. Berechurch, Essex; Bangor, Carnarvonshire; near Newark, Nottingham; plentiful at Cantley, near Doncaster, Yorkshire; between Ryton and Winlaton, Durham. Reported from Lancashire by Hudson: but this requires confirmation by recent authority.

England. Annual. Late Summer, Autumn.

G. ochroleuca has very much the aspect of *G. Ladanum*, especially of the sub-species *G. intermedia*, but the leaves are generally larger and broader, more deeply serrate; and the whole plant is much more softly and thickly pubescent, and more glandular. The bracts are shorter, less stiff, and scarcely recurved; the calyx-teeth are shorter, little more than half the length of the tube, and narrowing gradually from the base to the apex; the corolla is much larger, usually $1\frac{1}{4}$ inch long, the tube more dilated upwards, and the upper lip much more deeply notched; the colour is generally pale yellow, but the plant has been found also with white and with purple flowers. The nucules resemble those of *G. intermedia* in shape and size, and like them are olive-brown, opaque, and sprinkled with patches of whitish scales.

Downy Hemp-nettle.

French, *Galéope douteuse*. German, *Gelbich Weisser Damm*.

SPECIES III.—**GALEOPSIS TETRAHIT.** *Willd.*

PLATES MLXXVII. MLXXVIII. MLXXIX.

Stem succulent, thickened at the nodes, branched, the branches spreading-ascending. Leaves ovate or oval, acuminate, acute, coarsely serrate. Outer bracteoles shorter than the calyx. Calyx-teeth subulate-spinous. Upper lip of the corolla entire or notched; tube as long as or longer than the calyx. Plant hispid-pubescent with rather long stiff hairs, those on the stem deflexed-spreading; calyx more or less thickly pubescent with long stiff hairs.

? SUB-SPECIES I.—**Galeopsis versicolor.** *Curt.*

PLATE MLXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXI. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 832.

G. Tetrahit γ *grandiflora*, *Benth. in D.C. Prod. Vol. XII. p. 498.*

G. speciosa, *Mill. Crep. Man. Fl. Belg. ed. ii. p. 177.*

G. cannabina, *Willd. Roth, Tent. Vol. I. p. 254.*

Calyx-teeth about as long as the tube. Corolla tube twice as long as the calyx-teeth. Upper lip vaulted, as broad as long, usually notched; lower lip with the middle lobe quadrate-obovate, notched or obcordate. Nucules very convex on the inner face towards the apex.

In cultivated fields, principally on sandy ground. Common in the north of England and south of Scotland, but becoming rare towards the extreme north and south of the kingdom. Local in Ireland, and most frequent in the north of that island.

England, Scotland, Ireland. Annual. Late Summer, Autumn.

Stem 6 inches to 3 feet high, rather stout, more or less thickly clothed with long bristly hairs, which are slightly bent downwards, much branched in large specimens. Leaves with the stalk shorter than the lamina, which is 1 to 3 inches long, hispid on both sides, especially on the veins beneath. Calyx $\frac{1}{2}$ inch long, sparingly hispid, with numerous ribs, and a strong border connecting the teeth, which are triangular, gradually acuminate into long subulate points, consisting mainly of the spinous-pointed midrib. Corolla about $1\frac{1}{4}$ inch long, yellow, speckled with purple at the base of the lower lip; the middle lobe with a large purple blotch occupying nearly the whole disk, surrounded by a pale margin; tube gradually enlarged upwards, hairy externally; upper lip usually acuminate and bifid at the apex; lower lip with 2 rather large protuberances at the base; middle lobe flat, crenulated, generally notched. Nucules $\frac{1}{8}$ inch long, obulate, compressed, olive-brown, speckled with patches of whitish scales; slightly convex on the back, strongly so on the inner face, where there is a broad shallow fovea on each side of the middle line towards the base; the top marked with veins, diverging from the middle line just above the fovea. Plant rather pale green.

Large-Flowered Hemp-nettle.

German, *Bunter Dawn*.

? SUB-SPECIES II.—*Galeopsis eu-Tetrahit*.

PLATES MLXXVIII. MLXXIX.

G. Tetrahit, *Auct. plur.*

Calyx-teeth usually a little longer than the tube. Corolla tube slightly exceeding the calyx-teeth; upper lip nearly flat, longer than broad, entire or crenated; lower lip with the middle lobe quadrate, notched or nearly entire. Nucules slightly convex on the inner face towards the apex.

Var. *α*, *genuina*.

PLATE MLXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXI. Fig. 1. (?)

G. Tetrahit, *Koch, Syn. Fl. Germ. et Helv. ed. ii. p. 651. Reich. fil. l. c. p. 17. (?)*

Corolla twice as long as the calyx-teeth; lower lip nearly entire, flat.

Var. β , *bifida*.

PLATE MLXXIX.

*Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXX. Fig. 1.**Billot, Fl. Gall. et Germ. Exsicc. No. 1301.**G. bifida, Benth. Kew, Syn. Fl. Germ. et Helv. ed. ii. p. 651. Reich. fl. l. c. p. 18.*

Corolla half as long again as the calyx-teeth; lower lip notched; the margins at length reflexed.

In cultivated fields and open places; in woods and in hedge-banks, and waste ground. Common, and generally distributed.

England, Scotland, Ireland. Annual. Late Summer, Autumn.

Stem 1 to 3 feet high, generally much branched; usually more so than in *G. versicolor*, to which it bears a very close resemblance in habit, but the calyx-teeth are generally longer and narrower; the tube more hairy; the corolla smaller, dull rose colour or white, with the lower lip often spotted with purple. The nucules are very similar, but less convex on the inner face, and with the two basal foveæ much less obvious; they are certainly never green when fully ripe in the plant as found about London, being exactly the same olive-brown tint as in *G. versicolor*. Plant usually of a darker green than *G. versicolor*.

The var. *bifida* seems to have but slender claims to be considered distinct, though it is a smaller plant than var. α in all respects. In var. α the corolla is $\frac{3}{4}$ to $\frac{7}{8}$ inch long, in var. β not more than $\frac{1}{2}$ inch or $\frac{5}{8}$ inch.

Common Hemp-nettle.

French, *Galéope tétrahite*. German, *Gemeiner Daun*.

Dr. Prior tells us that this plant would be more properly called Hemp Dead Nettle, from its flowers resembling those of the dead nettles, and its leaves those of Hemp.

GENUS XVI.—LEONURUS. *Linn.*

Calyx funnel-shaped, scarcely enlarging in fruit; limb ascending or at length spreading, of 5 subspinous-pointed teeth. Corolla bilabiate; tube rather short; upper lip erect, concave, entire, usually longer than the lower; lower lip spreading, 3-lobed; the middle lobe broader, notched. Stamens 4; filaments subparallel under the upper lip of the corolla; anthers approximating in pairs; anther-cells joined at the apex, and divergent nearly in a straight line, opening by a longitudinal slit common to both. Nucules truncate at the summit.

Herbs with the leaves generally deeply lobed, lower ones nearly round; the bracts narrower. Verticillasters many-flowered. Flowers rather small, pink or white.

The name of this genus of plants comes from *λέων*, a lion, and *οὐρά*, a tail, from its supposed likeness.

SPECIES I.—**LEONURUS CARDIACA.** *Lin.*

PLATE MLXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXII. Fig. 2. and MCCXXXIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2516.

Leaves stalked; the lower ones roundish, palmately cleft. Bracts 3-cleft; the uppermost ones elliptical, generally with only a tooth on each side. Corolla tube with an oblique ring of hairs within; upper lip flattish; lower one spreading, the middle lobe entire. Plant puberulent or pubescent.

In waste places and hedge-banks. Rare, and doubtfully native. Thinly spread over England. Rare in Scotland, where it can have no claims to be considered native. In Ireland it has been recorded from near Dublin and about Cork; but the authors of the *Cybele Hibernica* do not admit it as a native.

England, [Scotland, Ireland]. Perennial. Late Summer, Autumn.

Stem 2 to 5 feet high, stout, erect, branched above in large examples. Leaves stalked, 2 to 4 inches long; the lower ones broader than long; the upper a little longer than broad; the lower ones more divided than the upper, which are cut into 3 segments, but more or less lacinate or coarsely toothed. Bracts all stalked, the lower ones resembling the upper leaves, the intermediate ones 3-cleft or with a single large tooth on each side, the uppermost nearly entire. Verticillasters all remote, very numerous, crowded. Calyx $\frac{1}{4}$ inch long; the teeth at length spreading, recurved, and strongly spinous, rather shorter than the tube, which is subglabrous or slightly pubescent. Corolla pale rose, scarcely $\frac{1}{2}$ inch long, densely clothed with long white woolly hairs, especially on the upper lip, which is longer than broad, and scarcely vaulted. Nucules olive, trigonous, smooth, slightly shining, truncate, and densely clothed with short stiff white woolly hairs at the apex. Plant dull green, the leaves paler below, pubescent, especially on the angles of the stem and under side of the leaves, the hairs varying much in length and abundance.

Motherwort.

French, *Agripaume cardiaque*. German, *Gemeines Herzgespann*.

GENUS XVII.—**LAMIUM.** *Linn.*

Calyx funnel-shaped, scarcely enlarging in fruit; limb ascending or at length spreading, of 5 teeth, which are scarcely spinous-pointed. Corolla bilabiate; tube rather long; upper lip erect, vaulted, entire or slightly notched, usually about as long as the lower one; lower lip spreading, 3-lobed, the lateral lobes often reduced to small teeth, the middle lobe generally notched. Stamens 4; filaments subparallel under the upper lip of the corolla; anthers approximate in pairs, the cells joined at the apex, and diverging nearly in a straight line, opening by a longitudinal slit common to both. Nucules truncate at the summit.

Decumbent herbs, with succulent stems and ovate or roundish serrate-crenate or cut leaves. Bracts similar to the leaves. Verticillasters many-flowered; flowers usually large, rose colour, pink or white, rarely yellow.

The derivation of the name of this genus of plants is variously given. One author gives the word *Lamium*, a ditch, as the origin, because the species are usually found in neglected places. Another writer states that the most direct etymology is from *Lampro*, the throat, alluding to the shape of the flower, from which word, says Dr. Withering, "the word *Lamium* itself is derived, as the name of a certain voracious beast or fish, or of a sorceress supposed to devour children."

SUB-GENUS I.—**EU-LAMIUM.** (*Lamium*, *Linn.*)

Under lip of the corolla with a large obcordate central lobe, and 2 small lateral lobes resembling teeth.

SPECIES I.—**LAMIUM AMPLEXICAULE.** *Linn.*

PLATE MLXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCIV. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2126.

Annual. Leaves stalked, deltoid-orbicular, subcordate or truncate at the base, obtuse, with a few large rounded entire or notched crenatures on each side. Verticillasters generally distant below. Bracts sessile, or the lower ones subsessile, reniform-orbicular, cordate, amplexicaul, irregularly inciso-crenate; each pair (or at least the uppermost ones) with the margins overlapping, so as to be pseudocomnate. Calyx densely pubescent; teeth rather longer than the tube, green, triangular, acuminate into subulate points, densely ciliated, connivent after flowering. Corolla tube without an internal ring of hairs, slender, straight, more than twice as long as the calyx-teeth,

sometimes abortive. Nucules thrice as long as broad, thickly dotted with white scales.

In cultivated ground and waste places, especially on sandy and chalky soil. Common, and generally distributed.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stems usually several from the crown of the root, 3 inches to 1 foot high, decumbent at the base, with branches in the axils of the leaves. Leaves on long stalks, confined to the lower part of the stem, the uppermost pair usually at a considerable distance from the lowest pair of bracts; lamina $\frac{1}{2}$ to $1\frac{1}{2}$ inch long. Verticillasters few, the lower ones often separated from the others; each pair of bracts bearing a superficial resemblance to a pair of connate leaves, $\frac{3}{4}$ to 2 inches from point to point, the upper pair smaller. Calyx $\frac{1}{4}$ inch long. Corolla purplish rose, about $\frac{3}{4}$ inch long or more, but frequently imperfectly developed, although such flowers produce fruit; tube dilated only at the throat; upper lip entire, oblong, densely hairy externally; lower lip with the lateral teeth extremely minute or absent. Nucules $\frac{1}{10}$ inch long, olive, speckled with white scales. Plant green, thinly pubescent throughout, with the stem subglabrous.

Henbit Dead-nettle.

French, *Lamier embrassant*. German, *Stengelumfassende Taubnessel*.

SPECIES II.—**LAMIUM INTERMEDIUM.** *Fries.*

PLATE MLXXXII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCIV. Fig. 1.

S. amplexicaule, var. *Benth.* Handbook Brit. Bot. p. 246.

Annual. Leaves stalked, deltoid-orbicular, cordate or subcordate at the base, obtuse, with a few large rounded entire or notched crenatures on each side. Verticillasters usually distant below, approximate above. Lowest pair of bracts generally distinctly stalked, reniform-deltoid, cordate, obtuse or subobtuse, irregularly and coarsely inciso-crenate, not contiguous at the basal margins; uppermost ones transversely-rhomboidal-reniform, those of each pair overlapping each other at the margins and thus pseudo-connate. Calyx thinly pubescent; teeth longer than the tube, generally purple, triangular-subulate, sparingly ciliated, slightly divergent even after flowering. Corolla tube without an evident internal ring of hairs, rather slender, straight, half as long again as the calyx-teeth. Nucules thrice as long as broad, thickly dotted with white scales.

In cultivated ground. Chiefly on sandy soil. Local. Rare in England, from whence I have not seen specimens. Not uncommon in

Scotland. Rather rare in Ireland, and confined to the north of the island.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stem 3 to 18 inches long, succulent, brittle, decumbent at the base, the flowering portion always erect. Leaves resembling those of *L. amplexicaule*, but generally larger. Lowest pair of bracts commonly stalked, sometimes with the stalk nearly as long as the lamina, but generally much shorter. Upper verticillasters generally approximate, with the bracts rapidly decreasing in size towards the apex of the stem; the lower pairs much larger in proportion to the flowers than is commonly the case in *L. amplexicaule*, often 3 inches across from point to point. Calyx $\frac{1}{2}$ inch long, much less densely and softly pubescent than in the last-named species. Corolla $\frac{3}{4}$ inch long, paler red, with the tube shorter, and the limb much larger in proportion than in *L. amplexicaule*. Nucules $\frac{1}{2}$ inch long, olive, sprinkled with white scales, the triangular space at the obliquely truncate apex larger in proportion than in the preceding. Plant dull green, thinly pubescent, with the stem subglabrous.

Intermediate Dead-nettle.

German, *Mittlere Taubnessel*.

SPECIES III.—**LAMIUM INCISUM.** *Walt.*

PLATE MLXXXIII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCIV. Fig. 1.

L. hybridum, Vill. Gren. & Godr. Fl. de Fr. Vol. XII. p. 680.

L. confertum, Fries, Summ. Veg. Scand. p. 15.

Annual. Leaves stalked, roundish-deltoid, subcordate, subcordate-subobtusate, irregularly and deeply crenate. Verticillasters usually all contiguous at the apex of the stem. Lowest pair of bracts distinctly stalked, deltoid, subcordate; upper ones rhombic, generally wedge-shaped at the base; all acute, deeply inciso-crenate or cut into lobes, which are again crenate, none of the pairs overlapping and pseudoconnate. Calyx thinly pubescent; teeth nearly as long as the tube, generally green, triangular-subulate, sparingly ciliated, slightly diverging even after flowering. Corolla tube without an evident internal ring of hairs, rather slender, straight, rather shorter than the calyx-teeth. Nucules scarcely twice as long as broad, thickly dotted with white scales.

In cultivated ground and waste places, by roadsides, and on hedgerbanks. Rather common, and generally distributed.

England, Scotland, Ireland. Annual. Spring to Autumn.

Very like *L. intermedium*, of which it may be but a sub-species, but a smaller and more delicate plant, with much more the aspect of *L. purpureum*, from the fact that none of the bracts are pseudo-connate, and also from their being much more cut. The verticillasters are more approximate, usually all crowded at the apex of the stem; the bracts are also much more deeply cut; the calyx-teeth shorter, broader, and less rigid; the corolla much shorter, rarely above $\frac{1}{2}$ inch long; the nucules about $\frac{1}{8}$ inch long, but broader in proportion than in *L. intermedium*, in other particulars the two forms are very similar.

Cut-leaved Dead-nettle.

French, *Lamier découpé*. German, *Eingeschnittene Taubnessel*.

SPECIES IV.—**LAMIUM PURPUREUM.** *Linn.*

PLATE MLXXXIII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCIV. Fig. 3.

Billot, Fl. Germ. Exsicc. No. 1297.

Annual. Leaves stalked, roundish-deltoid, subcordate, subobtusely, irregularly and faintly (rarely deeply) crenate. Verticillasters all contiguous at the apex of the stem. Lowest pair of bracts distinctly stalked, deltoid-ovate, subcordate; upper ones sessile, deltoid, truncate at the base; all subacute, irregularly crenate, rarely incise-crenate, none of the pairs overlapping and pseudo-connate. Calyx thinly pubescent; teeth longer than the tube, green generally stained with purple, triangular-subulate, sparingly ciliated, spreading even after flowering. Corolla tube with a conspicuous transverse internal ring of hairs, rather slender, slightly curved, one-fourth longer than the calyx-teeth. Nucules scarcely twice as long as broad.

Var. α , *genuinum*.

Leaves and bracts shallowly crenate.

Var. β , *decipiens*. *Sond.*

Bracts incise-crenate.

In cultivated ground and waste places, by the sides of ditches, and on wall tops and hedge-banks. Very common, and generally distributed.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stem 6 to 18 inches long, decumbent and branched at the base; the flowering portion erect, stout, succulent, often tinged with purple. Leaves $\frac{1}{2}$ to 2 inches long. Lowest pair of bracts 2 to 5 inches from point to point, the upper pairs diminishing rapidly, so that the inflores-

rence forms a flattened pyramid. Corolla $\frac{1}{2}$ inch long, dull rose, rarely white, with the ring of hairs more conspicuous than in any of the previous species, and the lateral lobes of the lower lip with a subulate tooth, which is rarely absent. Nucules similar to those of *L. incisum*. Plant green, frequently tinged with purple, thinly hairy, with the stem subglabrous, as in the preceding forms.

The common form of this plant is readily distinguishable from *L. incisum* by its faintly crenate bracts, not at all wedge-shaped at the base, but the var. *decipiens* is very likely to be mistaken for it. The corolla, however, is much longer, and with a distinct internal ring of hairs in the variety as well as in the typical plant. This ring is merely rudimentary in *L. incisum*.

It is quite possible that *L. intermedium*, *incisum*, and *purpureum* ought to be considered merely as sub-species, but I have not put them in this form, because *L. intermedium* appears to have forms which, at least as dried specimens, are scarcely distinguishable from *L. amplexicaule*, and to consider *L. amplexicaule* and *L. purpureum* as constituting extreme forms of a single super-species is impossible without disturbing all existing ideas of a species even as understood by the class of botanists who use the term in its most comprehensive sense.

Red Dead Nettle.

French, *Lamier pourpre*. German, *Purpurrothe Taubnessel*.

SPECIES V.—**LAMIUM MACULATUM.** *Linn.*

PLATE MLXXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCV. Figs. 2. and 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 435.

L. rugosum, Ait. Hort. Kew. Vol. II. p. 296.

L. rubrum, Wallr. Sched. Crit. p. 300.

L. hirsutum, Lam. Dict. p. 410.

L. album, var. β, poll. Hook. & Arn. Brit. Fl. ed. viii. p. 332.

Perennial. Rootstock passing insensibly into the stem. Barren shoots short, erect. Stems much branched, a large portion at the base decumbent and rooting; the flowering part ascending or erect. Leaves stalked, ovate or deltoid-ovate, cordate, slightly acuminate, acute or subacute, irregularly crenate-serrate or crenate. Verticillasters (or at least the lower ones) remote from each other. Bracts all quite similar to the leaves, but the uppermost ones sessile, smaller, narrower, and more acuminate. Calyx sparingly hairy or nearly glabrous; teeth triangulate-subulate, spreading, sparingly ciliated, scarcely longer than the tube; tube slightly curved downwards, oblique at the mouth. Corolla tube much longer than the calyx-teeth, with a very conspicuous transverse ring of hairs within,

curved upwards, not saccate above the base on the under side, abruptly enlarged at the apex; upper lip greatly vaulted, obtuse, sparingly hairy; lower lip with the lateral lobes subulate, the middle lobe obcordate. Nucules more than twice as long as broad, destitute of white scales. (?)

In waste places, by roadsides, and in open woods. Not native, though found in many places, both in Scotland and England. I have it from Redland Court, near Bristol; Gloucestershire; Allersley, Warwickshire; Maybole, Ayrshire; Dalkeith Park, Edinburgh; Torrie and Carnock, Fife; Clova, Forfarshire; and Partick, near Glasgow.

[England, Scotland.] Perennial. Summer, Autumn.

Stem much branched at the base, extensively creeping, producing numerous barren shoots in autumn, which grow into flowering stems in the succeeding year. Leaves long-stalked, 1 to 2 inches long, rugose, deep green, frequently with a white stripe on the midrib, especially towards the apex. Verticillasters 4 to 10-flowered. Flowers 1 inch long, bright purplish-rose or white. Bracteoles extremely minute or none. Calyx widened upwards, slightly curved, the upper margin longer than the lower; teeth spreading, generally considerably shorter than the tube. Corolla bent into an S curve; the tube inclining upwards, and the upper lip forming the downward part of the curve; upper lip forming nearly a semicircle $\frac{1}{2}$ inch long, longer than the under lip, the middle lobe of which is reflexed. Nucules fuscous-olive, destitute of patches of white scales in the specimens which I have examined. Plant sparingly hairy, the stem with straight deflexed hairs or subglabrous.

Spotted Dead Nettle.

French, *Lamier taché*. German, *Gefleckte Taubnessel*.

SPECIES VI.—**LAMIUM ALBUM.** *Linn.*

PLATE MLXXXVI.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCV. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 2515.

Perennial. Rootstock much branched, creeping. Barren shoots short, erect. Stems erect, a small portion decumbent and rooting at the base, the flowering portion erect. Leaves stalked, ovate or triangular-ovate, cordate, acuminate, acute, deeply serrate or crenate-serrate, rarely irregularly inciso-serrate. Verticillasters (or at least the lowest ones) remote from each other. Bracts all quite similar to the leaves, but the upper ones sessile, smaller and narrower, and more acuminate. Calyx sparingly hairy or subglabrous; teeth triangular-subulate,

sparingly ciliated, spreading, longer than the tube; tube nearly straight, scarcely oblique at the mouth. Corolla tube longer than the calyx-teeth, with a very conspicuous oblique ring of hairs within, curved upwards, with a projecting sac immediately above the base on the lower side, gradually enlarged upwards to the apex; upper lip greatly vaulted, obtuse, densely hairy; lower lip with the lateral lobes subulate (rarely enlarged and subquadrate-oblong), the middle lobe obovate. Nucules about twice as long as broad, destitute of white scales.

By roadsides, borders of fields, in waste places, and on ditch banks, &c., &c. Very common, and generally distributed in England and the south of Scotland. Rare north of the Forth and Clyde, though extending to Stirling and Forfarshire; in Moray it occurs only as an introduced plant. Local and rare in Ireland, where it has not been observed west of the Shannon, and is considered to be probably introduced in the south.

England, Scotland, Ireland. Perennial. Spring to Autumn.

Rootstock generally subterranean, producing numerous stolons. Stems 6 inches to 2 feet high, succulent. Leaves much resembling those of the common nettle; the lamina 1 to 3 inches long. Bracts undistinguishable from the leaves, except from their having much shorter stalks. Verticillasters 6 to 18-flowered. Calyx tube generally spotted or stained with dark purple; teeth very long, weak, widely spreading. Corolla $\frac{3}{4}$ to 1 inch long, cream white. Nucules $\frac{1}{2}$ inch long, olive, destitute of the white scaly specks which occur on the nucules of the annual species. Plant more or less pubescent with long hairs, those on the stem reflexed.

Mr. Buckman found a curious variety near Cirencester Agricultural College: in this plant the lateral lobes of the under lip are greatly enlarged, instead of being minute and subulate, as in the ordinary form.

L. album bears considerable resemblance to *L. maculatum*, but the creeping part of the stem is more subterranean, the flowering portion more erect; the leaves longer, more deeply and sharply toothed, less rugose; verticillasters with more numerous flowers; corolla tube abruptly saccate immediately above the base (which is not the case in *L. maculatum*), and gradually enlarged upwards, the upper lip more pubescent; calyx not curved or oblique at the mouth, the teeth much longer.

White Dead Nettle.

French, *Lamier blanc*. German, *Weisse Taubnessel*.

SUB-GENUS II.—GALEOBDOLOX. *Huds.*

Under lip of the corolla with 3 lobes, the lateral ones rather shorter, but not much narrower than the middle lobe.

SPECIES VII.—**LAMIUM GALEOBDOLON.** *Crantz.*

PLATE MLXXXVII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCVI. Fig. 3.*Billot*, Fl. Gall. et Germ. Exsicc. No. 1298.*Galeobdolon luteum*, *Huds. Sm.* Engl. Bot. ed. i. No. 787. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 650.*Galeopsis Galeobdolon*, *Linn.* Sp. Pl. p. 810.

Perennial. Rootstock tufted or very shortly creeping. Barren shoots very long, trailing or arching, at length rooting. Flowering stems not rooting at the base, erect or ascending. Leaves stalked, ovate or deltoid-ovate, subcordate, slightly acuminate, acute, doubly or irregularly crenate-serrate. Verticillasters remote from each other. Lower bracts similar to the leaves, but narrower, and with shorter stalks; upper ones generally lanceolate, with a wedge-shaped base, more rarely similar to the lower ones. Calyx puberulent or sparingly bristly-hairy; teeth deltoid, abruptly acuminate into triangular points, sparingly ciliated or glabrous, and subspinous at the apex, spreading, not half the length of the tube; tube slightly curved and oblique at the mouth. Corolla tube rather longer than the calyx, with a conspicuous very oblique ring of hairs within, slightly curved upwards, without a projecting sac near the base on the lower side, suddenly enlarged towards the apex; upper lip greatly vaulted, obtuse, sparingly hairy; lower lip with the lateral lobes ovate-acuminate, the middle lobe a little larger, oblong, acuminate into a lanceolate point.

In woods and on hedge-banks, particularly on chalk and limestone formations. Local, but not uncommon in the south of England; rare in the north, where it extends north to Lancashire and Yorkshire. It has occurred in Scotland, but is scarcely deserving to be considered even as a naturalised plant. Rare, and very local in Ireland, where it is nearly confined to the east of the island.

England, [Scotland,] Ireland. Perennial. Spring, early Summer.

Rootstock many-headed, emitting numerous wiry radical fibres and producing flowering and barren stems, the latter in autumn attaining the length of 1 or 2 feet, and growing much in the same way as those of *Vinca major*. Flowering stems 9 inches to 2 feet high, more or less flexuous towards the base. Lamina of the leaves 1 to $2\frac{1}{2}$ inches long. Verticillasters 6 to 10 flowered. Bracts $1\frac{1}{2}$ to 3 inches long, the upper ones sometimes very narrow. Calyx yellowish-green. Corolla $\frac{3}{4}$ to 1 inch long, yellow, the lower lip bright yellow, with reddish-brown spots and streaks; upper lip considerably more than half the length of the corolla; tube very short. Anthers destitute of the hairs which

occur in all the other British species. Nucules generally abortive: at least I have never been able to find them mature. Plant light green, more or less thickly pubescent with rather stiff hairs, those on the stem deflexed.

The British plant has the upper bracts usually narrow, and is the *Galeobdolon montanum* of Reichenbach. Occasionally, however, I have seen the bracts all broad and similar to the leaves (*G. luteum*, *Reich.*), but the two forms certainly do not deserve to be called even varieties.

Yellow Archangel.

French, *Lamier jaune.* German, *Goldnessel.*

TRIBE VI.—AJUGOIDEÆ.

Corolla apparently 1-lipped, from the upper lip being very short or split down the middle. Stamens 4 (rarely 2), parallel, the outer or lower pair the longest; anthers 2-celled, the cells contiguous.

GENUS XVIII.—AJUGA. *Linn.*

Calyx tubular, scarcely enlarging in fruit; limb erect or ascending, with 5 teeth, which are not spinous-pointed. Corolla subunilabiate; tube rather long; the upper lip very short, notched, the lower one spreading, 3-lobed. Stamens 4; filaments subparallel, protruding beyond the upper lip of the corolla; anther-cells joined at the apex, and diverging nearly in a straight line, opening by a longitudinal slit common to both.

Low herbs of various habit.

The name of this genus of plants seems to be a corruption of the Latin word *abigo*, to drive away, in allusion to its remedial qualities.

SECTION I.—BUGULA. *Tournef.*

Verticillasters 6 to many-flowered. Corolla blue, rose, purple, or white, never yellow.

SPECIES I.—AJUGA REPTANS. *Linn.*

PLATE MLXXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXIV. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 1304.

Perennial. Rootstock almost always emitting elongated runnerlike stolons with distant pairs of leaves. Flowering stems erect, the lateral ones curving upwards, simple, with 1 or 2 pairs of leaves. Radical leaves

and those of the stolons persistent till the time of flowering, stalked, obovate or oblanceolate, attenuated towards the base, obtuse, repand or repand-crenate or repand-dentate; stem leaves similar to the radical leaves, but usually subsessile. Bracts sessile, oblong-oval or oval, sub-obtuse, repand, all of them spreading, the uppermost ones generally coloured. Verticillasters occupying more than half of the stem, 6 to 12-flowered, the lower ones distant, the upper approximate. Calyx subglabrous; teeth lanceolate, shorter than the tube, ciliated with jointed hairs. Corolla longer than the upper bracts; middle lobe of the lower lip obcordate.

In open woods, pastures, and on banks, &c. Common, and generally distributed. Rare in the north of Scotland.

England, Scotland, Ireland. Perennial. Spring, early Summer.

Rootstock short, truncate, producing rosettes of spreading leaves, which, including the stalk, are $2\frac{1}{2}$ to 7 inches long; stolons elongated, lying on the ground, at length 3 to 12 inches long, in autumn rooting, and producing at the apex rosettes similar to the primary one. Stems erect, 4 to 18 inches high. Stem leaves 1 to $2\frac{1}{2}$ inches long. Bracts decreasing in size upwards, the lowest $\frac{3}{4}$ to 2 inches long, the upper $\frac{1}{4}$ to $\frac{1}{2}$ inch, generally stained with the same colour as the flowers. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long, usually dull blue, more rarely dull purplish rose or white. Nucules broadly ovoid, olive, honey-combed. Plant subglabrous, the stem with 2 opposite strips of jointed white glandular hairs, the margins of the leaves and bracts generally ciliated, and sometimes the leaves and bracts have scattered hairs on both surfaces, especially when young.

A. alpina of British authors is said to be a form of this plant destitute of stolons, but whether it ever occurs really without stolons, except accidentally, I am unable to say. I have never seen it in this condition except in the herbarium specimens where the stolons may have been broken off, or in a living state except in places where the plant may have been injured by sheep. I do not know whether the Scandinavian *A. alpina* be distinct from *A. reptans*, as I have not seen specimens.

A. alpina of English Botany, No. 777, is *A. Genevensis* rather more glabrous than usual.

Common Bugle.

French, *Bugle rampante*. German, *Kriechender Günsel*.

The common name of this species is derived from the word *bugulus*, a small glass pipe, used as a bead in female attire, and called in French Bugle: to which the bluish corollas of this plant have some very distant resemblance. In olden times this plant was regarded as a specific in gout, jaundice, and other complaints, but it is no longer used. It was formerly esteemed as a vulnerary, and possesses a considerable degree of astringency.

SPECIES II.—**AJUGA PYRAMIDALIS.** *Leon.*

PLATE MLXXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCXXXIV. Fig. 2.*Billot*, Fl. Gall. et Germ. Exsicc. No. 1306.

Biennial. Rootstock destitute of stolons. Flowering stems erect, simple, with 1 pair of leaves, or destitute of any. Radical leaves persistent till the time of flowering, indistinctly stalked, obovate or oblanceolate, attenuated towards the base, obtuse, repand-crenate or repand-dentate; stem leaves similar to the radical leaves, but sessile. Bracts sessile, oval or oblong-oval, subobtuse, dentate towards the apex or the upper ones entire, the uppermost ones coloured or herbaceous, adpressed. Verticillasters occupying nearly the whole of the stem, usually 6-flowered, the lower ones rather distant or all of them approximate. Calyx woolly with jointed hairs; teeth linear-triangular, much longer than the tube, densely ciliated with jointed hairs. Corolla shorter than any of the bracts; middle lobe of the lower lip quadrate-obovate, truncate.

In bare places by the sides of streams, and among open woods in mountainous districts. Very rare. Confined to the north of Scotland. I have seen it from Caithness, where it has occurred in several localities near the coast, and have collected it in Berridale in Hoy, and Neversdale on the Mainland, Orkney. It has been reported, on good authority from Argyle, western Inverness, the Hebrides, Ross, and Moray. In Ireland it is recorded in the Isles of Arran and Burren, co. Clare.

Scotland, Ireland. Biennial, or Perennial. (?) Early Summer.

Rootstock short, oblique, certainly only biennial in the Orkney plant, but on the continent it is said to be perennial. Radical leaves 2 to 4 inches long. Flowering stems 3 to 8 inches high, solitary or, in large plants, several from the crown of the rootstock. Bracts more toothed towards the apex, and the upper ones more adpressed than in *A. repens*. Flowers $\frac{1}{2}$ inch long, pale blue, densely crowded, in a pyramidal 4-sided spike occupying nearly the whole of the stem. Nucules very similar to those of *A. repens*. Plant densely clothed with jointed hairs throughout, but, according to Mr. Bentham, on the continent it is sometimes glabrous. The bracts in the living specimens of the Orkney plant which I have seen were herbaceous, but they are described as being sometimes purplish.

Pyramidal Bugle.

French, *Bugle pyramidale*. German, *Pyramidenförmiger Gümsel*.

SECTION II.—CHAMÆPITYS. *Benth.*

Verticillasters reduced to pairs of flowers, or rarely 4-flowered. Corolla yellow or rose colour.

SPECIES III.—AJUGA CHAMÆPITYS. *Schreb.*

PLATE MXC.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXV. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 616.

Annual. Stems decumbent, branched near the base, with numerous pairs of leaves. Radical leaves decayed by the time of flowering, stalked, narrowly oblanceolate, nearly entire or repand; stem leaves stalked, wedgeshaped, 3-toothed or cut into 3 rather short lobes. Bracts tripartite, with long linear entire lobes, herbaceous, the uppermost one adpressed. Verticillasters occupying more than half of the stem, 2-flowered, the lower ones rather distant or all approximate. Calyx woolly with bristly hairs; teeth triangular, much longer than the tube, ciliated with bristly hairs. Corolla shorter than any of the bracts; middle lobe of the lower lip obcordate.

In cultivated fields, on chalky soils. Local. Common in the chalk districts of Kent and Surrey. Besides these counties it occurs in those of Wilts, Hants, Essex, Cambridge, Herts, Bedford, and Northampton. Dr. St. Brody has sent me a specimen from "waste ground near Lanthony Abbey," Gloucestershire.

England. Annual. Summer.

Stem diffusely branched, 3 to 9 inches long, the branches ascending at the apex. Lowest leaves 1 to 2 inches long; bracts $\frac{3}{4}$ to $1\frac{1}{2}$ inch long. Flowers about $\frac{1}{2}$ inch long, bright yellow, the lower lip speckled with red. Nucules fuscous, oblong-cylindrical, longitudinally curved, honeycombed, with the scar on the convex face occupying more than half the length of the nucule. Plant green, densely hairy with stiff hairs, which consist of a few long joints; stem generally purplish red.

Ground Pine.

French, *Bugle faux-pin.* German, *Gelbbblumiger Günsel.*

Dr. Prior gives us the etymology of the common name of this species thus: *χαμαί-πιτρυς*, from *χαμαί*, ground, and *πιτρυς*, pine, so called from its terebinthinate odour, the Forget-me-not of all authors till the beginning of this century.

GENUS XIX.—TEUCRIUM. *Linna.*

Calyx tubular or campanulate, frequently subbilabiate, from the uppermost tooth being more spreading than the others; teeth 5, generally not spinous-pointed. Corolla subunilabiate; tube rather short; upper lip very short, slit down to the calyx tube; lower lip 3-lobed, the middle lobe larger than the others, and often notched: from the splitting of the upper lip its segments appear to belong to the lower lip, which thus seems to have 5 lobes instead of 3. Stamens 4; filaments subparallel, protruded through the slit in the upper lip; anther-cells joined at the apex, and diverging nearly in a straight line, opening by a longitudinal slit common to both.

Herbs, undershrubs, or shrubs of various habit.

This genus of plants is named in honour of Teucer, a medical botanist, its discoverer.

SECTION I.—CHAMÆDRYS. *Mönch.*

Verticillasters 2 to 6-flowered, distinct (not approximate, so as to form a distinct spike or head), with all the bracts, or at least the lowest pairs, like the leaves. Calyx of 5 nearly equal teeth, the uppermost one not spreading.

SPECIES I.—TEUCRIUM BOTRYS. *Linna.*

PLATE MXCLI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXIX. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 835.

Annual. Stem wiry, erect, generally branched at the base, and also paniculately branched above; branches ascending-spreading. Leaves all stalked, trifid, with each of the 3 segments cleft or trifid, or the central one pinnatifid with 2 pairs of segments and a terminal one; ultimate segments strap-shaped, entire, paler and densely clothed with glands beneath, and with the principal veins very prominent. Bracts similar to the leaves, stalked, the upper ones much smaller. Verticillasters 4 to 6-flowered, arranged in a lax raceme, occupying the greater part of the stem or branches. Calyx glandular-pubescent, inflated, saccate at the base on the lower side; teeth erect, deltoid-triangular, nearly equal, half the length of the tube, minutely spinous-mucronate. Corolla about twice as long as the calyx. Nucules trigonous-subglobose, deeply pitted-honeycombed. Plant glandular-pubescent.

In chalky corn-fields. "In a stony and very deep valley facing the west, near the end of Boxhill farthest from Burford Bridge, at a considerable distance back from the front of the hill between that and Headly Lane and Bagley Hill, Bookham, Surrey." Fl. of Surrey, p. 175. It is also said to have been formerly found at Sanderstead.

England. Annual. Late Summer.

Stem erect, 4 to 10 inches high, branched towards the base; the lateral divisions curved upwards, the central one erect, simple or with spreading branches. Leaves about 1 inch long, the petiole winged, the principal veins very deeply impressed on the upper side, prominent beneath. Bracts like the leaves, or bi-pinnatifid, diminishing in size upwards, longer than the lower flowers, shorter than the upper ones. Calyx about $\frac{1}{4}$ inch long, often tinged with purple, thinly pubescent, inflated and reticulated in fruit. Corolla $\frac{5}{8}$ inch long, purplish rose, variegated with paler patches and red dots. Nucules fuscous-olive, coarsely pitted. Plant pubescent with long hairs, intermixed with numerous shorter gland-tipped ones.

Cut-leaved Germander.

French, *Germandrée botride*. German, *Trauben-Gamander*.

SPECIES II.—TEUCRIUM SCORDIUM. *Linn.*

PLATE MXCII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXIX. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 438.

Perennial. Rootstock creeping, stoloniferous. Stem herbaceous, erect or decumbent, paniculately branched or simple; branches erect or ascending. Leaves all sessile, oblong or elliptical-oblong, dentate-serrate or crenate-serrate, those of the main stem truncate or subcordate at the base, those of the branches rounded at the base, opaque, more or less hairy on both sides, not glandular beneath. Bracts similar to the leaves, scarcely any smaller, but when the plant grows out of the water they are rounded or even wedgeshaped at the base. Verticillasters about 4-flowered, arranged in a lax raceme, occupying about half the stem or branches. Calyx pubescent, and with a few gland-tipped hairs, scarcely inflated, but slightly saccate at the base on the lower side; teeth erect, deltoid-triangular, nearly equal, half the length of the tube, not spinous-pointed. Corolla about twice the length of the calyx. Nucules trigonous-ovoid, faintly reticulate-honey-combed. Plant more or less thickly pubescent with long woolly hairs,

intermixed with short gland-tipped ones, or with the leaves subglabrous on both sides.

In wet meadows and ditches. Very rare. At Branton Burrows, near Biddeford, north Devon, and at Bolton on Swale, near Richmond, York. These are the only places from which I have seen specimens. It is stated in the Flora of Cambridge to grow between Cambridge and Ely; Prof. Babington has seen it from Mepal near the latter town. It is reported to grow near Horning, Norfolk, and in the counties of Oxford, Northampton, and Lincoln, but the two latter stations require confirmation. In Ireland it occurs in the south and west, and is abundant along the west shore of Lough Derg, from near the bridge at Portumna.

England, Ireland. Perennial. Summer, Autumn.

When growing on ground which is merely inundated in winter, the stems are rigid, 3 inches to 1 foot high, with suberect branches; the leaves $\frac{3}{4}$ to 1 inch long; the bracts much attenuated at the base; the whole plant densely clothed with white wool. When growing in water, the plant has somewhat the habit of *Scutellaria Galericulata*; the stem weak and flexuous; the branches ascending; the bracts cordate at the base; and the whole plant is subglabrous, except the stem and calyx, which, however, are less hairy than in the terrestrial form. Both forms have flowers on stalks rather longer than the calyx. Calyx about $\frac{1}{2}$ inch long. Corolla nearly $\frac{1}{2}$ inch, pale purplish-rose; the middle lobe of the under lip spotted with darker rose towards the base. Nucules minute, light reddish-brown, much less wrinkled than in *T. Botrys*. Plant dull green, often opaque, nearly white from the abundance of hairs. Stolons long, with small scalelike leaves at distant intervals.

The state with clasping bracts is *I. scordioides* of *Bab. Man. Brit. Bot. ed. i. p. 237*, but it is merely a state and not a variety. The plant of Schreber, under that name, which occurs in the south of Europe, has the leaves and bracts much broader, cordate, and amplexicaul; the flowers on longer pedicels, and the calyx smaller: it appears to be distinct, at least as a sub-species.

Water Germander.

French, *Germandrée aquatique*. German, *Kneblauchbistender Gamander*.

This plant possesses tonic and aromatic bitter qualities, but is no longer used in medicine, though perhaps superior to some of the drugs which are substituted for it. The dried leaves are employed powdered as a vermifuge by the peasantry, and a decoction is said by Withering to be a good fomentation for gangrene. The whole herb has a strong garlic-like odour, and when eaten by cows it is apt to give its flavour to the milk, but those animals usually refuse to touch it unless compelled by hunger.

Dr. Prior, whose authority is reliable, tells us that the name Germander is derived from the words *χαμαι*, ground, and *ἄλξ*, oak, so named from the fancied likeness of its leaves to those of an oak.

SPECIES III.—**TEUCRIUM CHAMÆDRYS.** *Linn.*

PLATE MXCIV.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXXIX. Fig. 5.*Billot*, Fl. Gall. et Germ. Exsicc. No. 164.

Perennial. Rootstock creeping, stoloniferous. Stem woody at the base, decumbent, much branched; branches ascending. Leaves all distinctly stalked, rhombic-obovate, wedgeshaped and entire at the base, the terminal half or two-thirds deeply inciso-crenate-serrate; upper surface shining, the under side dim and thickly glandular, with only the main veins prominent. Lowest bracts similar to the leaves, the upper ones much smaller (about as long as the calyx), oval, acuminate, and nearly entire. Verticillasters about 6-flowered, arranged in a rather lax unilateral spikelike raceme at the apex of the stem and branches. Calyx sparingly pubescent and sprinkled with glands, not inflated, but slightly succate at the base on the lower side; teeth erect, triangular, acuminate and spinous-pointed, about half the length of the tube. Corolla more than twice the length of the calyx. Nucules trigonous-ovoid, nearly smooth. Plant more or less hairy with bristly hairs, the upper side of the leaves sometimes glabrous.

On old walls. Scarce, but found in many places, but only where it has been planted or escaped from cultivation.

[England, Scotland, Ireland.] Perennial or shrub. Summer,
Autumn.

Rootstock extensively stoloniferous. Stem 3 to 18 inches long, wiry. Leaves very numerous, $\frac{3}{4}$ to $1\frac{1}{2}$ inch long, including the petiole, into which the wedgeshaped base of the lamina passes almost imperceptibly. Bracts scarcely distinguishable from the leaves towards the base of the inflorescence, but those towards the apex much smaller and often stained with purple. Calyx $\frac{1}{4}$ inch long, often purple. Corolla $\frac{3}{4}$ to $\frac{5}{8}$ inch long, rose colour; the lower lip variegated with white and darker rose. Nucules much less wrinkled than those of the 2 preceding species. Plant dark green, varying in the degree of hairiness.

Wall Germander.

French, *Germandrée petite chène.* German, *Gemeiner Gamander.*

This species acts as a slight aperient as well as a tonic, and was formerly considered a valuable remedy for gout, and various other disorders. It entered into the composition of the once celebrated "Portland Powder." Its reputation as a specific for the gout is of very old date; Charles V. having been cured of that disorder by a decoction of this herb. The Emperor, it should be remarked, took it for sixty days in succession—a course which few patients would submit to; and we are inclined to attribute his cure as much to the work of time as to the efficacy of his medicine.

SECTION II.—SCORODONIA. *Mönch.*

Verticillasters 2-flowered, approximate so as to form a distinct terminal raceme or spike with minute bracts dissimilar to the leaves. Calyx pseudo-bilabiate from the uppermost tooth being very much larger and more spreading than the others.

SPECIES IV.—TEUCRIUM SCORODONIA. *Linna.*

PLATE MXCIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXVII. Fig. 2.

Billot. Fl. Gall. et Germ. Exsicc. No 437.

Scorodonia heteromalla, *Mönch*; Schur, Enum. Plant. Transylv. p. 574.

Perennial. Rootstock creeping, woody, stoloniferous. Stem herbaceous, erect or decumbent at the base, stiff, slightly branched; branches erect. Leaves all stalked, triangular-ovate or oblong-ovate, cordate at the base, irregularly and finely crenate or crenate-serrate; upper surface finely rugose, underside pale, densely and finely pubescent, with the veins forming a prominent network. Bracts all minute, oval, acuminate or cuspidate, much shorter than the calyx. Verticillasters 2-flowered, arranged in rather lax unilateral spikelike racemes at the apex of the stem and branches, which taken together form a slender terminal panicle. Calyx sparingly pubescent, not inflated, but slightly saccate at the base on the lower side; uppermost tooth much larger than the others, spreading, nearly half the length of the tube; the 4 lower teeth erect, about one fourth the length of the tube, but projecting beyond the upper tooth from the obliquity of the mouth of the calyx, all roundish-deltoid, acuminate, shortly spinous-cuspidate. Corolla more than twice the length of the calyx. Nucules subglobular, dim, not reticulated.

In woods, hedge-banks, rocky places, and heaths. Common, and generally distributed, but more rare in the extreme north of Scotland.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Stem 1 to 3 feet high, tough. Leaves rather distant; the lamina $1\frac{1}{2}$ to 3 inches long, always longer than the petiole, the texture resembling that of sage. Racemes 3 to 6 inches long. Bracts scarcely exceeding the pedicels. Calyx about $\frac{1}{10}$ inch long, the upper lip very large and with the sides recurved, the base swollen as the nucules increase in size. Corolla about $\frac{1}{2}$ inch long, ochreous. Nucules reddish-brown, nearly smooth, but dim. Plant deep green, the leaves pale beneath, the whole varying much in hairiness according to situa-

tion, but generally the upper side of the leaves has the green colour not at all obscured by the hairs.

Wood Germander.

French, *Germandrée des bois*. German, *Salveblüttriger Gamander*.

This plant is frequently called the Wood Sage. Its leaves and flowers are very bitter in flavour, and the whole herb possesses strongly tonic as well as aromatic qualities. The essential oil present in most of the order, exists in small proportion in the Wood Sage, but the bitter taste is due to the presence of a peculiar tonic principle found in all the species of the genus, and perhaps in more or less quantities in all Labiate plants. Formerly the Wood Sage was valued as a tonic medicine, but it has fallen into disuse. It is also employed in some districts as a substitute for hops in brewing, and in Jersey and some parts of France is known as "Ambroise," or "Ambrosia." It is said to communicate a pleasant flavour to ale, but it makes the ale very dark in colour.

EXCLUDED SPECIES.

ORIGANUM ONITES. *Linn.*

Said to have been found on the left hand of the road between Braintree and Raine below the bridge, Essex. No doubt *O. vulgare* was mistaken for it.

ORIGANUM VIRENS. *Link. & Hoffm.*

A pale variety of *O. vulgare*, found in the Isle of Wight by Dr. J. E. Gray, was entered as possibly *O. virens* in the London catalogue.

HYSSOPUS OFFICINALIS. *Linn.*

According to the late Dr. Bromfield, the Hyssop is naturalised on the ruins of Beaulieu Abbey, in the New Forest, Hants.

SCUTELLARIA HASTIFOLIA. *Linn.*

Two fragments of this plant were sent to the Botanical Society of London, labelled "*S. galericulata*, Ickleford Common, Hertfordshire." *Cyb. Brit. Vol. II. p. 268.*

STACHYS LANATA. *Linn.*

Planted, or escaped from cultivation, in several places, as in the Woods at Calvas Hall, Thirsk, where it was taken for *S. Germanica*. I have a specimen from "Norfolk" under the latter name.

AJUGA ALPINA. *Linn.*

The British plants recorded under this name are partly *A. repens*, and partly *A. Genevensis*. I do not know if there be a Scandinavian *A. alpina*, distinct from *A. reptans*, as I have not seen specimens of the plant which Fries calls by that name.

AJUGA GENEVENSI. *Linn.*

(*A. alpina*, Sm.) Eng. Bot. 477.

Figured in Eng. Bot. from a plant sent by Mr. Robson from Durham. Dr. J. Hooker many years ago sent Mr. Watson a specimen among plants collected in Lanarkshire. There is also an example of it from Wales in Buddle's Herbarium.

TEUCRIUM SCORDIOIDES. *Schreb.*

Supposed to be British, but a state *T. Scordium* was mistaken for it.

TEUCRIUM REGIUM. *Schreb.*

Said to have been found on the slope of the Bloreng, near Abergavenny, by Mr. E. Y. Steele.

ORDER LIV.—BORAGINACEÆ.

Herbs, more rarely shrubs, usually rough with simple or sometimes stellate hairs. Leaves (except sometimes those at the base of the inflorescence) alternate, undivided, generally entire, without stipules. Flowers perfect, regular or slightly irregular, generally in scorpioid racemes or spikes; racemes commonly arranged in pairs, rolled up in bud, but straightening out in fruit. Calyx persistent, often enlarging in fruit, free from the ovary, 5-cleft or 5-partite, rarely 4-cleft. Corolla deciduous, hypogynous, monopetalous, salvershaped or rotate or clavate cylindrical or funnelshaped, rarely subbilabiate; limb 5-lobed or 5-cleft, frequently with 5 scales or bosses at the throat. Stamens 5, inserted in the tube or throat of the corolla, alternate with its lobes, exserted or included. Ovary of 2 carpels, each of which is usually so deeply divided that the ovary is 4-celled and 4-lobed, with a single style coming from the centre of the 4 lobes, and consequently apparently from the base of the carpels, rarely terminal when the adhesion between the lobes of the ovary is more complete; stigma simple or bifid. Ovules 1 in each cell of the ovary. Fruit of (generally) 4 separate indehiscent

1-seeded coeca, usually called *nucules*, rarely drupaceous and with 2 or 4 stones. Embryo straight, without albumen, or curved when the latter is present; albumen none, or in small quantity and fleshy.

TRIBE I.—ANCHUSEÆ (including *Lithospermæ*).

Nucules 4 (or fewer by abortion), all free, not depressed, inserted by their base upon a flat torus.

GENUS I.—**ECHIUM**. *Tournef.*

Calyx 5-partite. Corolla irregular, funnelshaped, subbilabiate; throat enlarged, open, without scales or hairs; limb oblique, of 5 erect or slightly spreading segments. Stamens unequal, often exserted. Style 2-cleft. *Nucules* wrinkled, ovate-ovoid, without a tumid ring at the base, inserted upon the flat receptacle by a plain surface.

Bristly hispid, and often tuberculate herbs or undershrubs, with flowers in scorpioid spikes or racemes generally arranged in panicles. Corolla purple, red, or red changing to blue, varying to flesh colour or white.

The derivation of the name of this genus is from *εχis* (*echis*), a viper; its seeds when ripe being thought to resemble the head of this reptile.

SPECIES I.—**ECHIUM VULGARE**. *Linn.*

PLATE MXCV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXCVIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1534.

Stem herbaceous, densely hispid, and thinly clothed with long stiff bristly spreading hairs seated on small tubercles. Radical leaves strapshaped-oblongate or strapshaped-oblong, gradually attenuated at the base into indistinct petioles, the midrib very strong, the two lateral ribs and the side veins scarcely perceptible; lower stem leaves subsessile, strapshaped, attenuated towards the base; upper ones sessile, strapshaped, attenuated towards the apex, rounded but not at all amplexicaul at the base; all finely and thinly hispid with minute hairs, intermixed with long stout bristly hairs seated on minute unequal tubercles. Flowers all bracteate, in scorpioid spikes, which are arranged in a slender panicle; spikes at first very dense and short, afterwards elongating and erect-ascending; upper spikes sessile. Corolla tube slightly and gradually enlarged upwards, shorter than the calyx-teeth. Stamens much exserted.

In waste places and cultivated ground, by roadsides, and on shingly sea beaches, preferring chalky and sandy soils. Rather common, and generally distributed. Scarce towards the north of Scotland, and not extending to the extreme north of that country. Rather rare in Ireland, and principally found in the east of the island.

England, Scotland, Ireland. Biennial or Annual. Summer, Autumn.

Root thick, tapering, fuscous-brown. Radical leaves in a rosette, spreading, 3 inches to 1 foot long, variable in breadth. Stem 1 to 3 feet high, erect throughout, or decumbent at the base, simple or branched. Stem leaves 1 to 6 inches long. Spikes at first about 1 inch long, spreading-recurved, afterwards elongating, until in fruit they are 2 to 9 inches long and nearly straight and ascending, the flowers extending to their base except in the lowest spikes. Calyx slightly increasing in fruit until it is about $\frac{1}{2}$ inch long. Corolla usually about $\frac{1}{2}$ inch long, red in bud, afterwards brilliant blue, more rarely white. Nucules angular, acuminate, olive-brown, very rugose. Plant green, more or less hoary, from the abundance of white hairs, the bristly hairs so stiff as to be vulnerant; the longer hairs are seated on tubercles, never exceeding the size of a grain of sago, and generally much smaller.

A white-flowered variety occurs, which has the corolla usually short, and has frequently been mistaken for *E. Italicum*.

Common Viper's Bugloss.

French, *Vipéruse vulgaire*. German, *Gemeiner Natterkopf*.

The ancient reputation of this plant as a remedy against the effects of serpents' bites probably originated in an old notion that its seeds resembled a snake's head. Culpepper tells us "it is a most gallant Herb of the Sun: it is a pity it is in no more use than it is. It is an especial remedy against the biting of the viper and all other venomous beasts or serpents, as also against poyson or poysonful herbs. Dioscorides and others say that whosoever shall take of the herb or root before they be bitten shall not be hurt by the poyson of any serpent. The root or seed are thought to be most effectual to comfort the heart and expel sadness or cause less melancholy."

This plant dried and powdered forms an ingredient of the celebrated Spanish remedy against the bites of vipers and mad dogs.

SPECIES II.—*ECHIU PLANTAGINEUM*. *Linn.*

PLATE MXCVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCC. Figs. 1 and 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2326.

E. violaceum, E. B. S. No. 2798. *Reich.* Man. Brit. Bot. ed. v. p. 239. *Il. L. & A.* Brit. Fl. ed. viii. p. 289. *Benth.* Handbk. Brit. Fl. p. 374. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 578. (Non *Linn.* Herb.)

Stem herbaceous, scarcely hispid, thinly clothed with rather long

bristly spreading hairs seated on small tubercles. Radical leaves oval or elliptical-oval, abruptly attenuated into distinct petioles, the midrib, the lateral ribs, and the lateral veins all conspicuous; lower stem leaves sessile, oblanceolate, attenuated towards the base; upper ones oblanceolate, abruptly acuminate, abrupt or subcordate at the base, and semi-amplexicaul; all clothed with rather stiff bristly hairs seated on minute unequal tubercles. Flowers all bracteate, in scorpioid spikes, which are arranged in a slender panicle; spikes at first dense and short, afterwards elongating and spreading or divaricate, slightly curved upwards; all the spikes stalked, with the basal portion of the stalk bare of flowers and leaves. Corolla tube suddenly and greatly enlarged upwards, much longer than the calyx-teeth. Stamens at length slightly exserted.

By roadsides and in waste places in sandy ground. Rare, and only found in the south and south-west of Jersey, where it is plentiful by the side of St. Aubin's and St. Brelade's Bay.

Channel Islands. Annual or Biennial. Early Summer to Autumn.

Root resembling that of *E. vulgare*. Leaves, including the petioles, 2 to 18 inches long, bearing a superficial resemblance to those of the common plantain. Stem 6 inches to 3 feet high, erect or more or less decumbent, generally branched at the base, and again in the upper portion, where the branches form a wide panicle; there is usually about an inch near the base of these side branches destitute of flowers, afterwards these branches elongate until they are from 6 inches to 1 foot long. Corolla in the Jersey plant 1 to 1½ inch long, brilliant purplish blue, much darker than in *E. vulgare*; the nucules are very similar to those of that species. The hairs on the plant are much softer than in *E. vulgare*, and not vulnerant, and the pustules are still smaller.

This is *E. plantagineum* of the Linnean Herbarium. *E. violaceum* of that collection is represented by a plant, which I have not seen elsewhere, with large scattered stony pustules, some of them nearly ¼ inch in diameter. *E. violaceum*, *Lin.*, is certainly not *E. rubrum* of Jacquin, as supposed by M. Godron in the *Flore de France*: it is nearest the Algerian *E. grandiflorum* of Desfontaines, but has the pustules nearly twice as large as those of any of the specimens of that plant which I have seen.

Purple Viper's Bugloss.

French, *Vipérine à poils uniformes*. German, *Natterkopf*.

GENUS II.—PULMONARIA. *Tournef.*

Calyx 5-cleft. Corolla nearly regular, funnelshaped, suddenly dilated at the throat, which is open, without scales, but with 5 small

bosses bearing tufts of hair; limb scarcely oblique, slightly spreading, 5-lobed. Stamens equal, included in or exerted beyond the corolla tube. Style undivided. Nucules smooth, hard, ovate-ovoid, without a tumid ring at the base, inserted upon the flat receptacle by a plain surface which has a central tubercle.

Soft hispid or pilose herbs with succulent stems, and leaves often blotched or spotted with white. Flowers in terminal sub-corymbose scorpioid racemes; corolla red, changing to purplish-blue.

The name of this genus of plants is derived from the Latin word *Pulmo*, the lung, because of its alleged power in lung affections.

SPECIES L.—**PULMONARIA ANGUSTIFOLIA.** *Linæ. Wahl.*

PLATE MXCVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXIX. Figs. 1 and 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1277.

P. nemosa, Boissier; *Reich.*, *Syn. Fl. Germ. et Helv.* ed. ii. p. 579. *Reich. fl.* l. c. p. 57.

A. D. C. in *D. C. Prod.* Vol. X. p. 93.

Radical leaves elliptical, all gradually attenuated towards the base, and passing imperceptibly into the broadly winged petiole, gradually acuminate towards the apex, acute, immaculate, or marked on the upper surface with small blotches and specks of greenish-white (rarely with larger confluent blotches); lower stem leaves subsessile, strap-shaped-oblanccolate, the upper ones lanceolate or strap-shaped-lanceolate, more or less distinctly semi-amplexicaul, not decurrent. Corolla tube glabrous within below the circle of hairs in the throat. Plant rather softly pubescent, none of the hairs glandular nor vuluerant.

In woods, copses, and on hedge-banks, on clay soil. Rare. Plentiful about Ryde, Isle of Wight, but rare west of the Medina, and not known to occur except near Newport and Cowes. On mainland Hants, according to Dr. Bromfield, it appears to be confined to the New Forest district, where it is plentiful about Lymington and Boldre. The Rev. W. W. Newbould informs me that he has seen it extending along the railway banks into Dorsetshire.

England. Perennial. Spring. Early Summer.

Rootstock thick, with fleshy fuscous-brown root-fibres. Stems erect, 6 to 18 inches high, brittle, clothed with spreading hairs seated on minute tubercular papillæ. Leaves of the barren tufts or rosettes small during the time of flowering, but increasing in size in autumn until they are 6 to 10 inches long, variable in breadth, but always gradually attenuated towards the base; lower stem leaves subpetiole, the upper ones quite sessile, broader and shorter than the others,

and more distinctly amplexicaul. Flowers shortly stalked, at first appearing to be in a head, until the two or three helicoid racemes of which the inflorescence consists lengthen and straighten, remaining only slightly recurved at the apex, and attaining the length of 1 to 3 inches. Calyx about $\frac{1}{3}$ inch long, increasing to rather more than $\frac{1}{2}$ inch. Corolla $\frac{3}{4}$ inch long, at first rose-colour, afterwards brilliant blue, fading to purple; tube white; throat dull red. Stamens exerted or included. Calyx enlarged and inflated in fruit, with the segments connivent. Nucules smooth and shining, black, rounded at the apex. Plant pubescent, the radical leaves at length rough to the touch, but not prickly. Mr. F. Stratton (to whom I am indebted for fresh specimens of the Isle of Wight plant) tells me that this plant sometimes occurs with large confluent blotches in the leaves.

Perhaps it would be better to discard the name *P. angustifolia* for that of *P. azurea*, as the former name on the Continent is more generally applied to *P. tuberosa*, Schrank than to the plant described above, though Fries and Godron agree with British botanists in limiting it to our plant. Doubtless the two forms differ only as subspecies, so that *P. angustifolia* might be retained as the designation of the super-species.

Narrow-leaved Lung-wort.

French, *Pulmonaire à feuilles étroites*. German, *Schmalblättriges Lungenkraut*.

SPECIES II.—**PULMONARIA OFFICINALIS.** *Lin.*

PLATE MXCVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXVII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 592.

Radical leaves oval or ovate-oval, the exterior ones abruptly contracted at the base into the broadly winged petiole, the inner ones more gradually attenuated; all somewhat abruptly acuminate and acute at the apex, marked on the upper surface with blotches and specks of greenish-white, the larger blotches sometimes slightly confluent; lower stem leaves oval, abruptly attenuated into the indistinct petiole; uppermost ones oval-ovate, sessile, slightly decurrent. Corolla tube glabrous within below the circle of hairs in the throat. Plant rather softly pubescent, none of the hairs glandular, but those on the stem and mature radical leaves slightly vulnerant.

In woods and hedge-banks, but possessing little claim to be considered native, though occurring in many places in England and the south of Scotland.

[England, Scotland.] Perennial. Spring. Early Summer.

Very similar to *P. angustifolia*, of which some authors consider it merely a variety. The leaves, however, are always broader, the stems

usually not so tall, and the leaves (or at least the outer ones) of the barren shoots are abruptly contracted into the petiole, and acuminate at the apex. The blotches on the leaves of the plant in the specimens I have seen are larger, and have a greater tendency to become confluent. The calyx-teeth are deeper, and the fruiting calyx is more bell-shaped. The flowers are very similar, at first rose, then blue, as in *P. angustifolia*, but not nearly so highly coloured; the corolla is the same in shape, but usually a little larger. The nucules are more acute at the summit, and rather smaller. The hairs in the stem and leaves are stiffer, so that the plant is much harsher to the touch. I have not seen *P. officinalis* with the stamens exerted beyond the corolla tube.

Common Lung-wort.

French, *Pulmonaire officinale*. German, *Gebrauchliches Lungkraut*.

According to the ancient doctrine of signatures, this plant had an especial efficacy in diseases of the lungs; its spotted leaves being supposed to represent these organs, and, therefore, to indicate the direction of its natural curative properties.

GENUS III.—**MERTENSIA.** *Roth.*

Calyx 5-cleft or 5-partite. Corolla regular, funnel-shaped, suddenly dilated at the throat, which is open, without scales, but generally with 5 small bosses; limb not oblique, slightly spreading, 5-lobed. Stamens exerted. Style undivided. Nucules smooth or reticulate, rather soft, at length inflated, without a tumid ring at the base, attached to the flat receptacle by a plain surface.

Herbs, often glabrous and glaucous. Flowers in terminal scorpioid racemes, often corymbosely or paniculately arranged. Corolla red, changing to blue or purplish-blue, varying to white.

SPECIES I.—**MERTENSIA MARITIMA.** *Don.*

PLATE MXCIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXVII. Fig. 1.

Pulmonaria maritima, *Lin. Sm. Engl. Bot.* No. 368.

Lithospermum maritimum, *Lohn. Asp.* Vol. II. p. 291. *Sm. Engl. Fl.* Vol. I. p. 257.

Steenhammæra maritima, *Reich. Fl. Germ. Excurs.* p. 337.

Steenhammæra maritima, *Fries. Summ. Veg. Scand.* pp. 12 and 192.

Stems procumbent or decumbent, much branched. Leaves oval or obovate-oval, the lower ones shortly stalked, the upper sessile, all pseudo-distichous, very thick and fleshy, smooth when fresh, glabrous, intensely glaucous. Cymes dichotomous, with the leaves at the base of the forks opposite. Bracts large, resembling the leaves. Calyx with 5 segments, cleft three-quarters of the way down. Tube of the corolla with 5 folds in the throat; limb with 5 rhombic lobes as broad as long. Anthers equal to the filaments.

On the seashore, growing on shingle and sand. Very rare in England, where it occurs between Llandudno and the Little Orme's Head, and between Llanwrog and Clynog, Carnarvonshire; in Cemlyn Bay, and near Trefarthen, Anglesea; Isle of Walney, Lancashire; near Hemsley, Whitehaven, and Maryport, &c., Cumberland. In Scotland it is more common, extending north to Orkney and Shetland. Local in Ireland, and apparently confined to the eastern and northern coasts.

England, Scotland, Ireland. Perennial. Summer.

Rootstock fleshy, fuscous-black, often with several axes united together wholly or partially, producing numerous white fleshy stolons. Stems 6 inches to 2 feet long, densely leafy. Leaves pointing to the right and left of the stems, those of the barren shoots larger than the others, with the lamina $1\frac{1}{2}$ to 3 inches long, those of the stem 1 to 2 inches long, including the petiole, upper ones and bracts subsessile and smaller; all of them very thick, flat, brittle, conspicuously marked with callous points when dry. Flowers $\frac{3}{8}$ inch long, at first rose, afterwards bright blue. Calyx segments roundish ovate, separate nearly to the base. Corolla tube cylindrical; limb bellshaped, divided one-third of the way down into 5 short lobes. Nucules large, at first fleshy, but with a loose dry smooth shining black and somewhat inflated testa when ripe, the 4 nucules together forming a flattish 4-sided pyramid about $\frac{1}{4}$ inch high, the outer face of the nuts rounded, the inner with a prominent internal angle.

I am indebted to Professor Dickie for the fresh specimens from Nigg Bay, near Aberdeen, which the new drawing for plate MXXIX. was made.

GENUS IV.—LITHOSPERMUM. *Tournef.*

Calyx 5-partite. Corolla regular, funnelshaped or salvershaped; throat open, without distinct scales, but often with 5 small bosses; limb more or less spreading, 5-lobed. Stamens equal, generally included. Style undivided. Nucules ovate, ovoid, smooth or rugose, bony, without a tumid ring at the base, attached to the flat receptacle by a plain surface.

Herbs or undershrubs of various habit.

This genus of plants derives its name from the hardness of its seeds, and is the contraction of two Greek words, *λίθος*, a stone, and *σπέρμα*, a seed.

SPECIES I.—LITHOSPERMUM PURPUREO-CÆRULEUM. *Linn.*

PLATE MC.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2714.

Perennial, herbaceous. Barren shoots elongate, arching, procum-

bent. Flowering stem erect. Leaves elliptical-lanceolate, very acute, minutely pubescent on both sides. Inflorescence of 2 or 3 branches from the apex of the stem, which elongate much in fruit. Bracts longer than the calyx. Pedicels much shorter than the calyx in fruit. Corolla three times as long as the calyx. Nucleus bony, white, globular-ovoid, rounded at the apex, polished and shining, less than one-third the length of the calyx segments.

In woods and bushy places, on chalk and limestone. Rare, and very local. It occurs about Mary Church, Devon; near Bridgewater and Taunton, Somerset; Denbigh and Caswell Bay, Glamorgan; and in Darenth Wood, near Greenhithe, Kent. The latter is the only station in which I have myself collected it. There it grows near the middle of the wood, about 150 yards to the left of the public path going from Darenth to Stone, but only flowers the second year after the copse wood is cut.

England. Perennial. Summer.

Rootstock slender, woody, shortly creeping, producing arching barren shoots at length about 1 foot long; the leaves on these pseudostichous. Flowering stems erect, wiry, 1 to 2 feet high, with long hairs springing from minute tubercles. Leaves $1\frac{1}{2}$ to 4 inches long, the lower ones attenuated towards the base. Inflorescence at first subcapitate, but in fruit the 2 or 3 branches of which it consists (and which spring nearly from one point at the apex of the stem) grow till they are 4 to 8 inches long. Calyx in flower a little more than $\frac{1}{4}$ inch long, the segments lengthening in fruit till they are $\frac{1}{2}$ to $\frac{3}{4}$ inch long, densely strigosely hairy, as well as the short pedicels. Corolla $\frac{2}{3}$ to $\frac{3}{4}$ inch long, with a spreading funnel-shaped limb, which is of a brilliant purplish blue, becoming at length bright blue. Nucleus about as large as hemp seed, pure, pasty-white, highly polished, usually only 1 or 2 in each calyx ripening. Plant dark green, clothed with short hairs, seated on minute tubercles of unequal size.

Purple Gromwell.

French, *Grémil violet*. German, *Purpurblauer Steinsame*.

The common name of this plant seems to have been originally Gromell or Graymyle, as Turner says it should be written, from *Gromma solis* and *Melissa solis*, together. "That is all one, says the Grete Herball." So the apothecaries comprised the matter, according to Dr. Prior, and combined them.

SPECIES II.—**LITHOSPERMUM OFFICINALE.** *Lin.*

PLATE MCI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXIII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1535.

Perennial, herbaceous. Barren shoots none. Stems all erect.

Leaves elliptical-lanceolate or strapshaped-lanceolate, acute, minutely pubescent above, strigosely hairy beneath. Inflorescence of 3 or 4 branches from the apex of the stem, and generally 3 or 4 from the axils of the upper leaves, all of which elongate considerably in fruit. Bracts longer than the calyx. Pedicels much shorter than the calyx in fruit. Corolla a little longer than the calyx. Nucules bony, pearly white, polished and shining, ovate-ovoid, slightly acuminate toward the apex, more than half as long as the calyx segments.

In hedge-banks, open woods, and bushy and waste places. Rather scarce, but generally distributed; reaching north to Ross and Moray, but scarce in Scotland. Rather rare, but generally distributed in Ireland.

England, Scotland, Ireland. Perennial. Summer.

Rootstock rather thick, woody, not creeping. Stems stout, very rigid, 1 to 3 feet high, hairy, with the tubercles from which the hairs spring very prominent, so that when it is dry it feels like a file. Leaves crowded, $1\frac{1}{2}$ to 4 inches long, variable in breadth. Inflorescence at first capitate, the branches at length growing till they are 2 to 8 inches long and form a short panicle. Calyx segments $\frac{1}{4}$ inch long in flower, and about $\frac{1}{3}$ inch in fruit, strigosely hairy as well as the rachis and pedicels. Flowers $\frac{3}{8}$ inch long, ochreous-white. Nucules scarcely so large as hemp seed, generally only one or two ripening in each calyx; they taper considerably towards the apex, and are tinged with grey. Plant green; the upper side of the leaves thickly covered with very short hairs seated on minute tubercles, the lower surface with long adpressed hairs.

Common Gromwell.

French, *Grémil officinal*. German, *Gebräuchlicher Steinsame*.

In ancient times this plant had a reputation in calculous complaints, with, however, no good foundation. It is known in various parts of the country as Gray Mile or Millet and Pearl Plant.

SPECIES III.—LITHOSPERMUM ARVENSE. Linn.

PLATE MCII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXIV. Figs. 5 and 6.

Billot. Fl. Gall. et Germ. Exsicc. No. 153.

Annual. Barren shoots none. Stem erect, flexuous. Leaves strapshaped or strapshaped-elliptical, subobtusely, shortly strigosely hairy on both sides. Inflorescence of 2 or 3 branches from the apex of the stem, and often additional ones from the axils of the upper leaves, all of which elongate much in fruit. Lower bracts longer than the calyx, the upper ones scarcely exceeding it. Pedicels much

shorter than the calyx in fruit. Corolla a little longer than the calyx. Nucules bony, grey, shining, bluntly mucronated and deeply foveolate, ovate-ovoid, much acuminate towards the apex, rather less than half as long as the calyx segments.

In cultivated ground and waste places. Rather common, and generally distributed.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stem 8 inches to 2 feet high, with adpressed hairs, much less rigid and less rough than in *L. officinale*, in large specimens dividing into several at the base. Radical leaves oblanceolate, soon withering; stem leaves rather numerous, $1\frac{1}{2}$ to 3 inches long. Branches of the inflorescence at length 3 to 14 inches long. Calyx in flower about $\frac{1}{4}$ inch long, in fruit nearly $\frac{1}{2}$ inch. Corolla $\frac{3}{8}$ inch long, cream white. Nucules grey, rather smaller than those of *L. officinale*, narrowed from about the middle to the apex, much roughened, but with a vitreous lustre. Plant green, strigosely hairy on both sides of the leaves, the hairs on the leaves with rather large, but unequally sized tubercles.

Corn Gromwell.

French, *Grémil des champs*. German, *Ackersteinsame*.

This plant yields a good red dye, and is used in Sweden as a substitute for the true alkanet. Its colour is very good, but it does not produce enough to make it equally valuable. Linnaeus says the women in the northern parts of Sweden often stain their faces with it. The colouring matter is easily communicated to oil, wax, or any greasy substance. It has probably been occasionally used in this country as a pigment, for in some districts it is called Painting Root.

GENUS V.—**MYOSOTIS.** *Dill.*

Calyx 5-cleft, -toothed, or -partite. Corolla regular, salver-shaped or funnel-shaped; throat generally closed with 5 notched boss-like scales; limb spreading, not oblique, 5-lobed. Stamens included; filaments very short. Style undivided. Nucules smooth, ovate-ovoid, attached to the flat receptacle by a plain surface.

Softly hispid or subglabrous herbs, with small flowers in scorpioid racemes, which are terminal and from the axils of the upper leaves, in the former case generally in pairs. Corolla small, pink, changing to blue or yellow.

The name of this genus of plants comes from the two Greek words, *mūs*, a mouse, and *ōtē*, *ōtēs*, an ear, alluding to the soft and erect leaves which are supposed to have a resemblance to the ears of a mouse.

SPECIES I—*MYOSOTIS CÆSPITOSA* Schreb.

PLATE MCHL.

*Beich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MOCCXXI. Fig. 1.**Bildst. Fl. Gall. et Germ. Essicc. 2nd. Cent. E.**M. lingulata, "Loben." Fries. Nov. Fl. Suec. ed. ii. p. 64, and Summ. Veg. Scand. p. 12. Gron. & Godr. Fl. de Fr. Vol. II. p. 529. Beich. fl. l. c. p. 71.*

Herbaceous short, truncate, oblique or nearly vertical, not stoloniferous. Stem erect or ascending, usually much branched, with the pubescence adpressed. Lower leaves oblong-oblanccolate, gradually attenuated towards the base, and subpetiolate; stem leaves sessile, subdecurent, elliptical-strap-shaped or oblong-strap-shaped; all obtuse and apiculate, thinly clothed with adpressed pubescence. Pedicels slender, in fruit second and horizontally divaricate, all longer than the calyx, the lower ones twice or thrice as long. Calyx with adpressed straight hairs, cup-shaped-bell-shaped and open in fruit; segments triangular-ovate, divided rather less than half-way down. Corolla limb about as wide across as the length of the tube, nearly flat; segments about as broad as long, entire. Style about half as long as the calyx. Plant light green, with a somewhat greasy lustre.

In ditches, marshes, or wet places. Rather common, and generally distributed.

England, Scotland, Ireland. Biennial or Perennial. (?) Spring to Autumn.

Stems leafy to the base, 6 to 18 inches high, generally dividing into numerous branches of nearly equal height, diverging at a small angle, and giving a tufted appearance to the plant. Leaves 1 to 3 inches long, the lower ones attenuated towards the base into an indistinct petiole, the upper ones sessile and slightly decurrent; all somewhat translucent. Racemes generally in pairs, often with a leaf at the base of each, at length 3 to 6 inches long; fruit pedicels $\frac{1}{2}$ to $\frac{1}{2}$ inch long, the lower ones exceeding the upper; all, except sometimes the lowest, without bracts at the base, at first ascending, afterwards all turned horizontally in one direction. Calyx with strigose hairs which are not hooked at the tip. Corolla about $\frac{1}{2}$ inch across, sky-blue, with a yellow eye, with 5 blunt, obtuse, hump-like scales in the throat. Style short; stigma capitate, concave. Nucules shining, fuscous, roundish-ovoid, laterally compressed, and somewhat bordered towards the apex.

I have retained Schultz's name of "*cæspitosa*," as there seems to be some doubt respecting the plant intended by Lehmann by his *M. "lingulata*." Mr. Bentham joins *M. cæspitosa* to *M. pedastris*.

Tufted Water Forget-me-not.

French, *Myosotis gazeuxante*. German, *Rosenartiges Vergissmeinsicht*.

SPECIES II.—**MYOSOTIS PALUSTRIS.** Wok.

PLATE MCIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXX.

Rootstock elongate, creeping, oblique, stoloniferous: stolons subterranean, with small leaves during the summer, at length rooting at the nodes. Stem decumbent and rooting at the base, erect or ascending, flexuous, slightly branched, with the pubescence in the lower part commonly spreading or nearly absent, rarely adpressed. Lower leaves oblong-oblanccolate, gradually attenuated towards the base, and subpetiolate; stem leaves sessile, strongly decurrent, elliptical-strapshaped or elliptical-oblong; all obtuse and apiculate, thinly clothed with adpressed pubescence. Pedicels rather slender, in fruit horizontal or reflexed-divaricate, and sometimes subsecund, all without bracts, longer than the calyx, the lower ones twice or thrice as long. Calyx with adpressed straight hairs, widely bellshaped and open in fruit; segments deltoid, divided about one-fourth of the way down. Corolla limb twice or thrice as wide across as the length of the tube, flat; segments broader than long, slightly emarginate. Style nearly as long as the calyx. Plant light green, with a somewhat greasy lustre.

Var. *α*, *genuina*.

Billot, Fl. Gall. et Germ. Exsicc. No. 154.

Pubescence of the stem spreading.

Var. *β*, *strigulosa*.

Billot, Fl. Gall. et Germ. Exsicc. No. 154, bis.

M. strigulosa, Reich. Fl. Germ. Excurs. p. 342.

Pubescence of the stem adpressed. Plant more erect, leaves less strongly decurrent, and flowers smaller than in var. *α*.

In ditches, marshes, and wet places. Rather common, and generally distributed in England: more rare in Scotland, though extending north to Rescobie Loch, Forfarshire. Frequent in Ireland.

England, Scotland, Ireland. Perennial. Spring to Autumn.

M. palustris differs from *M. caespitosa* in the rootstock in autumn sending out into the mud numerous elongate stolons resembling those of *Epilobium obscurum*, but much stouter. The stem of *M. palustris* is usually taller, generally decumbent at the base and more angular; the leaves are commonly broader and less parallel-sided; the racemes are more flexuous, without leaves at the base; the pedicels stouter and commonly shorter; the flowers much larger, $\frac{1}{2}$ to $\frac{3}{4}$ inch across, bright sky-blue,

with a yellow eye. The calyx is 5-toothed, merely, not 5-cleft, as in *M. cæspitosa*, and the teeth are broader at the base; the style is nearly twice as long. Commonly the pubescence on the stem is spreading in the lower part, but in var. β it is more or less adpressed, and in both var. α and β it is sometimes nearly obsolete; the pubescence on the rachis, pedicels, and leaves in both the varieties is adpressed and sparse.

Great Water Forget-me-not.

French, *Myosotis des marais*. German, *Sumpf-Vergissmeinnicht*.

This pretty plant is peculiarly the favourite of poets and sentimentalists. Most abundantly does it grow beside brooks, rivers, and wayside streams, and, must we say it? even in stagnant ditches, asking only for moisture to adorn the most deserted places with its turquoise flowers. In cultivation it will even dispense with this requirement, and produce blossoms of a larger size than when wild. It is an excellent plant for window gardening, and is improved by "bedding," as the gardeners call it, blooming all the summer through, if properly treated. Beauty, however, is not the sole attraction of this favourite flower; it has associations connected with it in legends, in poetry, and in real life, which live long after its beautiful blossoms have perished. For many centuries it has been regarded throughout Europe as the emblem of eternal friendship and love, and it is hard to believe that the name, "Forget-me-not," conveys any other meaning than the most tender one. Dr. Prior tells us that this name, so long assigned to our *Myosotis*, was for more than two hundred years given to a very different plant in France and the Netherlands, the ground pine, *Ajuga Chamæpitys*, on account, as was said, of the nauseous taste that it leaves in the mouth. It was to this plant, he tells us, that it was assigned by all the earliest writers on Botany, until in later times it was transferred to the *Myosotis*, with the story of a drowning lover which it now bears. This well-known story belongs to the days of chivalry, when a knight and his lady-love were wandering on the banks of a stream where grew clusters of these gemlike flowers. In those days the wish of the lady was law to the knight, and she, desiring some of these lovely blossoms, caused her faithful cavalier to rush into the stream to obtain them for her, when, overborne by the current, he was carried away, and could but cast on the bank, with dying hand, the flowers he had gathered for her, exclaiming, "Forget me not." We can see some improbabilities in the old story, for these flowers grow chiefly near the borders of streams, and, except when gemming some little island, are not found in their very midst. The German will tell us, however, that the knight wore his armour at the time, and so was rendered especially helpless in the current.

In Mill's "History of Chivalry" we read that a flower bearing the name of "Soveigne vous de moy" was, in the fourteenth century, woven into collars and worn by knights, and that one of these was the subject of a famous joust fought in 1465 between the two most accomplished knights of England and France. On this occasion the fair ladies of the court presented to Lord Scales, the victor, a collar of gold enamelled with "forget-me-nots." Whether the flower at that time associated with the name was the same as the one we now write of it is almost impossible to ascertain. One of our great botanists suggests, with a philosophical but unpoetical

ind, that the real signification of the name is after all due to the bright blue tint and yellow eye of this charming flower, which if once seen is not likely to be forgotten. Pliny, who, like most of the early writers, has always some wonderful tale to tell of the Egyptians, affirms that they believe that if this plant is gathered on the

27th day of Thiatis, which answers nearly to our August, and anyone anoints his eyes with its juice before he speaks in the morning, he will be free from weak eyes all that year. We do not find that this much-prized plant has ever been used in any other arts of life, yet it is a household favourite, and reminds us that there is in the human mind a deep and close association between the external beauty of nature and the strongest feelings of our hearts. Who but loves to meet, as Coleridge has it—

“By rivulet or wet road-side
That blue and bright-eyed flow’ret of the brook
Hope’s gentle gem, the sweet Forget-me-not”?

It is indeed prominent amongst

“The token flowers that tell
What words can never speak so well.”

SPECIES III.—**MYOSOTIS REPENS.** *Don.*

PLATE MCV.

Rootstock short, scarcely creeping, but stoloniferous; stolons spreading above ground, with large leaves before the end of summer, at length rooting at the apex only. Stem erect, slightly branched, with the pubescence in the lower part dense, stiff, and spreading. Lower leaves oblanceolate, gradually attenuated towards the base into rather indistinct petioles, very obtuse; stem leaves sessile, subdecurent, strapshaped-oblong, obtuse, thinly clothed with somewhat spreading pubescence. Pedicels slender, in fruit horizontal or recurved-divaricate, subsecund, all without bracts, longer than the calyx, the lower ones 2 to 4 times as long. Calyx with adpressed straight hairs, funnel-shaped-bellshaped and open in fruit; segments triangular-strapshaped divided more than half-way down. Corolla limb flat, rather more than twice as wide across as the length of the tube; segments about as broad as long, slightly emarginate. Style nearly as long as the calyx. Plant dull green, with scarcely any lustre.

In wet places and ditches. Widely distributed, but rather scarce in England. Plentiful in Scotland, and extending to the extreme north of that country. Widely distributed in Ireland.

England, Scotland, Ireland. Perennial. Summer, Autumn.

This plant is apparently very imperfectly known, but appears to be quite distinct from *M. palustris*, with which most of the continental botanists join it, or at least its name appears as a synonym, though I do not venture to quote it as such without some assurance that the continental *M. repens* is really the same as Don's plant.

The stolons of *M. repens* spread in all directions, and have large leaves even in summer; they take root and sometimes flower the same year, but more frequently not till the following spring; they are

entirely above ground, not buried in the mud like those of *M. palustris*, which are produced much later in the season, and have the leaves almost scalelike until early in the following spring. The original root dies after ripening its seed, and the plant is continued by its stolons, which become separate plants. It is much more densely hairy than *M. palustris*; the root leaves and those of the stolons are more narrowed towards the base; the stem leaves are more parallel-sided; the flowers are rather smaller; the calyx much more deeply divided. From *M. cæspitosa* it differs in having the procumbent branchlike stolons already mentioned; in the dense spreading pubescence of the stem; the much larger corolla limb; and the calyx narrowed at the base even in fruit, more deeply divided, and with narrower segments. From both it differs in being of a darker colour, without any of the greasy semi-translucent appearance which distinguishes both *M. palustris* and *M. cæspitosa*. The flowers have the same bright sky-blue tint and yellow eye as those of *M. palustris*.

Creeping Water Forget-me-not.

SPECIES IV.—**MYOSOTIS ALPESTRIS.** *Schmidt.*

PLATE MCVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1278.

M. rupicola, Sm. Engl. Bot. No. 2559.

M. suaveolens, Waldst. & Kit. in Willd Enum. p. 176. Bab. Man. Brit. Bot. ed. iii. p. 223.

M. sylvatica, β. alpestris, Koch, Syn. Fl. Germ. et Helv. ed. ii. p. 581. A. D.C. in D.C. Prod. Vol. X. p. 108. Fries. Summ. Veg. Scand. p. 12. Reich. fil. l. c. p. 71. Benth. Handbk. Brit. Bot. ed. ii. p. 325.

M. alpestris β. rupicola, Fries, Nov. Fl. Suec. ed. ii. p. 64.

Rootstock short, scarcely creeping, not stoloniferous branched, the branches very short, each producing a flowering stem or a barren tuft. Stem ascending, rather stiff, simple or nearly so, with the pubescence in the lower part rather dense and stiff, spreading. Lower leaves oblanceolate, abruptly or gradually narrowed towards the base into distinct, rather long petioles, subacute or obtuse; stem leaves sessile, subdecurent, oblong-strapshaped, acute, rather thinly clothed with short woolly spreading pubescence. Pedicels rather stout, in fruit ascending, not secund, all without bracts, about as long as the calyx, or the lower ones a little exceeding it. Calyx with long adpressed straight hairs, intermixed towards the base with spreading incurved hairs, or rarely with a few hooked-pointed hairs, funnelshaped-bellshaped and open in fruit; segments lanceolate-strapshaped, divided more than half-way down. Corolla limb flat, rather more than thrice as wide across as the length of the tube; segments as broad as long, entire. Style

rather more than half the length of the calyx. Nucules not keeled towards the apex on the face, distinctly bordered at the apex. Plant dull green, without any lustre.

On ledges of mica-slate and limestone rocks on mountains. Rare, and very local. On the west slope of Ben Lawers, and on Struich-an-Lochan, immediately to the east of that mountain, in abundance. Found by Messrs. Backhouse on the east end of Micklefell ridge, Teesdale, from whence, however, I have not seen specimens.

England, Scotland. Perennial. Late Summer, Autumn.

Plant growing in dense tufts, the short branches of the rootstock clothed with the brown remains of the petioles of previous years. Stems somewhat decumbent, 3 inches to 1 foot long, rather stout, simple, or rarely with a branch from some of the upper leaves. Leaves of the barren tufts (including the petiole) 2 to 5 inches long, the lamina often shorter than the petiole; lower stem leaves subpetiolate, those from the middle of the stem upwards sessile, 1 to 2 inches long. Racemes at length $1\frac{1}{2}$ to 3 inches long, with the rachis rather rigid. Corolla $\frac{3}{4}$ to $\frac{1}{2}$ inch across, very bright blue, darker than that of *M. palustris*, with the yellow eye usual in the genus. Nucules black, polished and shining, ovate-ovoid, compressed, bordered on both sides towards the apex, but with no keel on the face.

Alpine Forget-me-not.

French, *Myosotis des Alpes*. German, *Wald Vergissmeinnicht*.

SPECIES V.—**MYOSOTIS SYLVATICA.** Ehrh.

PLATE MCVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXII. Fig. 1. (?)

Billot, Fl. Gall. et Germ. Exsicc. No. 155.

Rootstock none, or short, not creeping nor stoloniferous, not branched, but producing a single branched or numerous nearly simple stems from where it appears above the ground, and sometimes also barren tufts. Central stem erect, the others decumbent at the base, weak, with the pubescence in the lower part rather dense, stiff, spreading. Lower leaves oblanceolate or oval-oblanceolate, abruptly or gradually narrowed towards the base into distinct rather short petioles, subacute or obtuse; stem leaves sessile, subdecurent, elliptical-oblong or lanceolate (or the upper ones ovate-lanceolate) acute, rather thickly clothed with short stiff spreading pubescence. Pedicels slender, in fruit spreading or ascending-spreading, often subsecund, all without bracts, generally exceeding the calyx, the lower ones often twice as long. Calyx with a few long adpressed hairs and numerous spreading incurved ones, many of them hooked-pointed, ovate-ovoid and nearly closed in fruit; segments

triangular-lanceolate, divided more than half-way down. Corolla limb flat, rather more than twice as wide across as the length of the tube; segments as broad as long, entire. Style rather more than half the length of the calyx. Nucules keeled towards the apex on the face, indistinctly bordered at the apex only. Plant rather dull green, without any lustre.

In woods. Rather rare, though widely distributed; but it is so often confounded with the wood form of *M. arvensis* that it is difficult to give the distribution accurately. I have seen no specimens from a more southern station than Staffordshire and Yorkshire; but the figure in "English Botany" was drawn from a Norfolk specimen, and the Rev. W. W. Newbould has seen one from Essex. In the south of Scotland it is more abundant, especially in the woods along the banks of the Esk from Pennecuik to Inveresk, which is the only place in which I have gathered it myself.

England, Scotland. Biennial or Perennial. (?) Spring, early Summer.

Stems slender, commonly numerous, 8 inches to 2 feet high. Root leaves (including the petiole) 1 to 6 inches long; stem leaves 1 to 2 inches long. Racemes at length 3 to 7 inches long; rachis weak. Flowers $\frac{3}{8}$ inch across, bright blue, resembling those of *M. palustris*, from which, however, the hooked hairs on the calyx, the distinctly stalked root leaves, and the want of lustre distinguish it at a glance. *M. sylvatica* certainly comes very near to *M. alpestris*, and perhaps ought to be considered distinct from that merely as a sub-species, but it has a different mode of growth, the rootstock not dividing into numerous branches below ground, but sending off stems and sometimes barren shoots above the surface of the soil. The stems are weaker, and the racemes less stiff than in *M. alpestris*; the leaves are broader, especially those on the stem, which have a tendency to become lanceolate, or the upper ones even ovate-lanceolate, and the hairs upon them are much shorter, stiffer, straighter, and finer, and those on the upper side of the leaves without enlarged glandular bases; the pedicels are longer, more slender, and more divaricate; the calyx considerably shorter, wider at the base, and with the segments connivent (not spreading) in fruit, and has the hairs with hooked points much more numerous; the corolla is smaller, and paler blue; the nucules are more broadly ovate-ovoid, and have a keel on the face towards the apex, so that the point forms a 3-sided pyramid, and the border on their edges towards the apex is less prominent than in *M. alpestris*. The root generally dies after flowering once, though this is said not to be always the case.

Wood Forget-me-not.

French, *Myosotis des Forêts*. German, *Wald Vergissmeinnicht*.

SPECIES VI.—**MYOSOTIS ARVENSIS.** *H. Gm.*

PLATE MCVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXIII. Fig. 1:

Billot, Fl. Gall. et Germ. Exsicc. No. 156.

M. intermedia, *Link.* A. D.C. in D.C. Procl. Vol. X. p. 106. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 581. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 552. *Reich.* fl. l. c. p. 73.

Rootstock none or short, not creeping nor stoloniferous nor branched, but producing usually numerous stems from the point where it appears above ground, but no barren tufts. Stems erect, or the lateral ones ascending, rather stiff, generally branched, with the pubescence in the lower part rather thin, stiff, spreading. Lower leaves oblanceolate, gradually attenuated towards the base into an indistinct petiole, sub-obtuse; stem leaves sessile, subdecurent, oblong, or the upper ones lanceolate-oblong, acute, thickly clothed with short stiff spreading pubescence. Fruiting racemes shorter than the leafy part of the stem. Pedicels rather slender, spreading-ascending, usually not secund, all without bracts, generally exceeding the calyx, the lower ones often twice as long. Calyx with a few long adpressed hairs, and very numerous spreading hairs, all of which are hooked-pointed, ovate-ovoid and closed in fruit; segments triangular-strap-shaped, divided more than half-way down. Corolla limb less than twice as wide across as the length of the tube, usually concave; segments not so broad as long, entire. Style less than half the length of the calyx. Nucules indistinctly keeled towards the apex on the face, bordered all round. Plant dull green, without any lustre.

Var. α , *genuina*.

PLATE MCVII.

Tube of the corolla shorter than the calyx segments, limb narrow and concave. Plant annual.

Var. β , *umbrosa*, *Bab.*

M. arvensis β *dumetorum* *Crep.* Mon. Fl. Belg. ed. ii. p. 164, and Notes, fas. ii. p. 49. *M. nemorosa*, "Fl. Tarn. p. 492" (*Crep.*).

Tube of the corolla equalling the calyx segments; limb broad and flat. Plant more robust than in var. α , and usually biennial.

In cultivated fields and waste places, especially in sandy and gravelly soil. Very common, and generally distributed. Var. β in shady woods.

England, Scotland, Ireland. Annual or Biennial. Spring to Autumn.

Stems in var. α 6 to 18 inches high, generally with numerous branches, in this respect resembling *M. caespitosa*; sometimes, however, when the stems are very numerous from the rootstock they are simple; pubescence often very abundant and stiff, leaves narrower and more parallel-sided than in *M. sylvatica*, the lower ones not so distinctly stalked; racemes at length 3 to 8 inches long; the pedicels less spreading than in *M. sylvatica*; the calyx with more numerous hooked hairs, and the segments more connivent over the nucules. Corolla $\frac{1}{8}$ to $\frac{1}{6}$ inch across, rather dull blue. Nucules shining black, with a less evident keel than in *M. sylvatica*, but a more conspicuous border, which runs round the whole of the lateral margins from the base to the apex.

Var. β is very often mistaken for *M. sylvatica*, but it is a stouter plant, with the stem usually more branched, the leaves more parallel-sided, the hooked-pointed hairs on the calyx more numerous, the corolla little more than $\frac{1}{6}$ inch across and of not so bright a blue, and the plant agrees with the typical form of *M. arvensis* in the fruiting calyx and nucules.

Field Forget-me-not.

French, *Myosotis des champs*. German, *Mittleres Vergissmeinnicht*.

SPECIES VII.—**MYOSOTIS COLLINA.** *Reich.*

PLATE MCIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXIII. Figs. 2 and 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 157.

M. hispida, "*Schlecht.*" *A. D.C.* in *D.C.* Prod. Vol. X. p. 108. *Koch*, Syn. Fl. Germ. et Helv. p. 582. *Gren. & Godr.* Fl. de Fr. Vol. II. p. 581. *Reich. fil.* l. c. p. 72.

M. arvensis, *Sm.* Engl. Bot. No. 2558 and Engl. Fl. Vol. I. p. 252.

Rootstock none. Stem erect or ascending, weak, branched towards the base, with the pubescence in the lower part dense, stiff, spreading. Lower leaves oblanceolate, gradually attenuated towards the base into an indistinct petiole; stem leaves sessile, subdecurent, oblong or elliptical-oblong, subacute, thickly clothed with rather long stiff pubescence, all alternate. Fruiting raceme longer than the leafy part of the stem. Pedicels rather slender, in fruit spreading or spreading-ascending, usually not secund, the lowest one commonly distant from the others, and with a leaflike bract at the base, all shorter than the calyx, or the lowest ones equalling it. Calyx with a few long adpressed hairs, and very numerous spreading ones, all of which are hooked-pointed, widely bellshaped and open in fruit; segments triangular-strapshaped, divided half-way down. Corolla limb about as

wide across as the length of the tube, usually concave; segments not so broad as long, entire. Style about one-third the length of the calyx. Nucules indistinctly keeled towards the apex on the face, bordered all round. Plant dull green, without any lustre.

On dry banks, fields, wall tops, and waste ground. Common, and generally distributed, except in the West and North Highlands, where, however, it may have been overlooked. Apparently rare in Ireland, and at present only known to occur on the east coast.

England, Scotland, Ireland. Biennial or Perennial. Spring, early Summer.

This species bears much resemblance to *M. arvensis*, but is smaller, often only 2 or 3 inches high, and scarcely ever above 6 or 7; the leafy part of the stem is exceedingly short; the lowest flower on the main raceme is usually separated from the rest, and in the axil of a leaflike bract; the pedicels are shorter; the flowers smaller, bright blue, scarcely tinged with pink in bud, as they are in all the preceding species. The nucules are smaller and brown, not black, as in *M. arvensis*. The plant dries up and disappears early in the summer.

Dwarf Forget-me-not.

French, *Myosotis des collines*. German, *Steifhaariges Vergissmeinnicht*.

SPECIES VIII.—**MYOSOTIS VERSICOLOR.** *Reich.*

PLATE MCX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXV. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 158.

Rootstock none. Stem erect, stiff, branched towards the base, with the pubescence in the lower part dense stiff, spreading. Lower leaves oblanceolate, gradually attenuated towards the base into an indistinct petiole; stem leaves sessile, subdecurent, oblong or strapshaped-oblong, subacute, thickly clothed with long stiff pubescence, those at the point where the forks of the racemes are given off generally opposite or nearly so. Fruiting raceme shorter than the leafy part of the stem. Pedicels ascending or ascending-spreading, not secund, the lowest one not distant from the others, all without bracts at the base, and shorter than the calyx, or the lowest ones equalling it. Calyx with a few long adpressed hairs, and numerous short spreading ones, all of which are hooked-pointed, ovate-oblong and closed in fruit; segments triangular-strapshaped, divided half-way down. Corolla limb half as wide across as the length of the tube, usually concave; segments not so broad as long, entire. Styles nearly as long as the calyx. Nucules

indistinctly keeled towards the apex on the face, bordered all round. Plant very dull green, without any lustre.

On dry banks and wall tops, and in woods, cultivated fields, and waste ground. Common, and universally distributed.

England, Scotland, Ireland. Biennial or Annual. Spring, early Summer.

This plant bears some resemblance to *M. arvensis* and *collina*, but differs from both in its more rigid habit, more leafy stems, longer and narrower calyces, with the segments erect or connivent in fruit, generally stained with dull lead blue. The flowers when they first open are ochreous, at length generally changing to pale blue; the lowest one of the main raceme is not separate from the others. Sometimes the flowers remain permanently yellowish white.

From *M. collina*, which has the pedicels nearly as short, it differs in the fruiting racemes not conspicuously exceeding the leafy part of the stem; in the corolla tube being longer and exerted, and the limb on its first expansion being pale yellow or white; and the style much longer.

Yellow and Blue Forget-me-not.

French, *Myosotis changeant*. German, *Verschiedenfarbiges Vergissmännicht*.

GENUS VI.—ANCHUSA. *Linn. M. Bieb.*

Calyx 5-cleft or 5-partite. Corolla regular or nearly so, salver-shaped or funnelshaped, sometimes nearly rotate; throat closed with 5 obtuse scales; limb spreading or concave, sometimes slightly oblique, 5-lobed. Stamens included. Achenes ovoid, wrinkled, sunk in and attached to the flat receptacle by an excavated surface.

Soft or bristly-hispid herbs, with the flowers in scorpioid racemes. Corolla purple or blue, rarely yellow.

The derivation of the name of this genus is from *ἄγχω*, to constringe the fauces, from the astringent qualities of the species.

SUB-GENUS I.—LYCOPSIS. *Linn.*

Tube of the corolla as long as or longer than the limb, curved about the middle; limb more or less irregular and oblique. Nucules with the ring at the base not prolonged into an appendage.

SPECIES I.—**ANCHUSA ARVENSIS.** *Wieb.*

PLATE MCXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCX. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 3159.

Lycopsis arvensis, *Linn.* *Soc.* Engl. Bot. No. 238. *Bot. Man.* Brit. Bot. ed. v. p. 229.

Hort. & *Arca.* Brit. Fl. ed. viii. p. 295. *Benth.* Handbk. Brit. Fl. ed. ii. p. 327.

A. D.C. in *D.C.* Prodr. Vol. X. p. 54. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 574.

Annual. Radical leaves oblong-ob lanceolate, attenuated towards the base into indistinct petioles; stem leaves sessile, oblong or strap-shaped-oblong, undulated at the margins, the upper ones semi-amplexicaul. Bracts lanceolate, sessile, the lower ones longer than the calyx. Pedicels shorter than the calyx, erect in fruit. Calyx segments strap-shaped-lanceolate, divided nearly to the base. Tube of the corolla curved, longer than the calyx; limb concave, slightly irregular, narrower across than the length of the tube; scales velvety. Style shorter than the calyx. Nucules without an appendage at the base, bordered, strongly wrinkled, and thickly covered with small raised points. Plant thickly bristly-hairy.

In cornfields and waste places, in sandy and chalky soils. Common, and generally distributed. Local in Ireland, and chiefly on the east side of the island near the sea.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Stem erect or somewhat decumbent, 6 inches to 2 feet high, branched in large examples, angular, succulent, brittle, thickly clothed with bristlelike vulnerant hairs. Leaves $1\frac{1}{2}$ to 5 inches long, varying in breadth, rather sparingly clothed with bristly hairs seated on tubercles of unequal size. Racemes solitary or in pairs, short while in flower, elongate in fruit, when they attain a length of from 3 to 6 inches. Calyx in flower $\frac{1}{4}$ inch long, in fruit about $\frac{1}{2}$ inch, thickly clothed with bristly hairs like those on the stem. Limb of the corolla slightly irregular, about $\frac{1}{4}$ inch across, pale blue, with the scales white. Nucules about $\frac{1}{8}$ inch long, olive-grey, with the border, ridges, and raised points paler. Plant light green.

Small Bugloss.

French, *Buglosse des campagnes.* German, *Acker-Ochsenzunge.*

Dr. Prior tells us that the name Bugloss comes from the Greek *βοῦς*, an ox, and *γλῶσσα*, tongue, descriptive of the shape and rough surface of the leaves of the plant.

SUB-GENUS II.—EU-ANCHUSA. *Gren. and Godr.* (ANCHUSA LINN.)

Tube of the corolla as long as or longer than the limb, straight; limb regular. Nucules with the ring at the base not prolonged into an appendage.

SPECIES II.—ANCHUSA OFFICINALIS. *Linn.*

PLATE MCXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCIX.

Billot. Fl. Gall. et Germ. Exsicc. No. 822.

Biennial. Radical leaves elliptical, attenuated into distinct petioles; stem leaves strapshaped or oblong, entire, the upper ones sessile or semi-amplexicaul; bracts lanceolate, semi-amplexicaul, the lower ones generally exceeding the calyx. Pedicels much shorter than the calyx, spreading in fruit. Calyx segments strapshaped, divided about half-way down. Tube of the corolla straight, about as long as the calyx; limb concave, regular, rather narrower across than the length of the tube; scales velvety. Style as long as the calyx. Nucules without an appendage at the base, bordered, strongly wrinkled and thickly covered with small raised dots. Plant thickly but rather softly hairy.

In waste places. Very rare, and probably not native. On the links at Hartley in Northumberland; "Kilsyth and Arnbrae, and at Uddingston, eight miles from Glasgow." (*Hook. and Arn. Brit. Fl.*)

[England, Scotland.] Biennial. Summer, Autumn.

Stem erect or decumbent, 1 to 2 feet high, branched in large examples, angular, tough, thickly clothed with stiff woolly hairs, which are not vulnerant. Radical leaves (including the petiole) 3 to 6 inches long, lower stem leaves subpetiolate, the upper ones $1\frac{1}{2}$ to 4 inches long, rather sparingly clothed with bristly woolly hairs seated on tubercles of unequal size. Racemes in pairs, short in flower, elongate in fruit, when they attain a length of from 2 to 4 inches. Calyx in flower $\frac{1}{2}$ inch long, in fruit about $\frac{4}{10}$ inch, sparingly clothed with incurved bristly-woolly hairs. Limb of the corolla $\frac{1}{3}$ inch across, dark bluish violet; scales pure white, thickly covered with short thick hairlike papillæ. Nucules about $\frac{1}{10}$ inch long, fuscous, with the border and raised points pale. Plant rather dark dull green.

Common Alkanet.

French, *Buglosse officinale*. German, *gebräuchliche Ochsenzunge*.

This plant was formerly valued as an emollient, and likewise esteemed as a cordial, but its properties do not entitle it to be regarded as a valuable medicinal herb.

In the north of France and in some parts of Germany, where it is common, the younger leaves are eaten as a green vegetable. The roots, which contain a large amount of mucilage, yield, by boiling in water, a demulcent liquid which is sometimes administered on the Continent. A green and red colouring matter is also made from the roots for tinting, lip salve, and other things. Its chief use is in giving a fine crimson colour to oils used in perfumery and in dyeing wool in imitation of rosewood. For this purpose the colour is separated by soaking the root in oil, and the wool is rubbed with the coloured oil until it is rendered sufficiently dark. About eight to ten tons of the root are annually imported chiefly from France and Germany. At one time it was gravely asserted and believed that if a man chewed a piece of this root and spat it into the mouth of a viper, it would certainly kill the reptile; but the presumption seems to resemble that which bids a child to catch a bird by putting salt on its tail. We find our old friend Gerard writing of a composition "called *Stragolis Francis*, which is most singular in deep punctures or wounds made with thrusts." He adds, "the gentlewomen of France do paint their faces with these roots, as it is said."

SUB-GENUS III.—CARYOLOPHIA. *Fisch.* and *Traut.*

Tube of the corolla shorter than the width of the limb, straight. Limb regular. Nucules with the ring at the base prolonged into an appendage on the inner side.

SPECIES III.—**ANCHUSA SEMPERVIRENS.** *Leon.*

PLATE MCXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCVI.

Caryolopha sempervirens, *Fisch.* and *Traut.* A. D. C. in *D. C. Prod.* Vol. X. p. 41.

Reich. fil. p. 50.

Perennial. Radical leaves oval, abruptly contracted into winged petioles; stem leaves ovate, acuminate, entire, the upper ones sessile, or subsessile, slightly decurrent. Bracts ovate or lanceolate, sessile, the lowest one only exceeding the calyx. Pedicels much shorter than the calyx, spreading-ascending in fruit. Calyx segments lanceolate-strapshaped, divided more than half-way down. Tube of the corolla straight, shorter than the calyx; limb flat, regular, twice as broad across as the length of the tube; scales finely pubescent. Style shorter than the calyx. Nucules with an incurved scalelike appendage produced from the basal ring on the inner side, faintly wrinkled and thickly punctate between the ridges. Plant sparingly and softly hairy.

By roadsides and in hedges. Rare, but widely distributed, and probably introduced in most of its stations, though it may perhaps be considered indigenous in the west of England. In Scotland and Ireland it is certainly only an introduced plant, or has escaped from cultivation.

England, [Scotland, Ireland]. Perennial. Spring, Summer.

Stem stout, erect, 1 to 2 feet high, without leafy branches. Radical leaves persistent, with the lamina 3 to 8 inches long, the petiole nearly as much more; lower stem leaves shortly stalked, the lamina 3 to 5 inches long, the upper ones smaller and broader at the base, all clothed above and on the veins beneath with unequal bristly hairs, the under surface softly pubescent. Racemes in pairs, with a flower in the fork, on long leafless stalks from the axils of the upper leaves, each fork of the raceme with the lowest bract large and leaflike, the other bracts small: before the racemes elongate (which they do very slightly, not growing to more than 1 inch long), the two large bracts at the base of the racemes seem like a pair of opposite leaves enclosing a head of flowers. Corolla $\frac{3}{4}$ inch across, very bright sky-blue, with the scales white. Nucules olive, with the ridges smooth, shining, and fuscous, forming an irregular network, the appendage rhomboidal, convex towards the outside. Plant dark bright green, slightly shining; the leaves paler beneath.

Evergreen Alkanet.

French, *Buglosse toujours verte.*

GENUS VII.—BORAGO. *Tournef.*

Calyx 5-cleft or 5-partite. Corolla regular, rotate, or nearly so; the throat closed by 5 scales; limb spreading or reflexed, 5-lobed. Stamens exserted, anthers connivent round the style. Nucules ovoid, smooth or rugose, sunk in and attached to the flat receptacle by an excavated surface.

Rough herbs with large blue flowers in scorpioid racemes, sometimes variegated with rose or white.

The derivation of the name of this genus of plants, according to Dr. Mayne, is as if from *Corago*—*cor*, the heart, *ago*, to chew—because it was used in the belief that it exhilarated or strengthened the heart.

SPECIES I.—BORAGO OFFICINALIS. *Linn.*

PLATE MCXIV.

Reich, Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCII. Fig. 3.

Annual or biennial. Radical and lower stem leaves oval, abruptly attenuated into long winged petioles, obtuse; middle stem leaves oblong, shortly stalked, or subpanduriform and sessile, the uppermost ones lanceolate. Calyx segments triangular-strapshaped, connivent in fruit. Corolla without any tube, rotate, flat. Anthers subsessile, apendiculate. Plant bristly-hairy, without large pustules on the leaves.

In hedges and in waste places. Rather rare, but widely distributed,

though not native. The only places where I have seen it thoroughly naturalised are St. Aubin's Bay, Jersey, and Hunstanton, Norfolk.

[England, Scotland, Ireland.] Annual or Biennial. Summer, Autumn.

Stem 9 inches to 2 feet high, very thick, succulent, branched in large specimens. Root leaves resembling those of *Achusa sempervirens*, with the lamina 3 to 7 inches long, and the petiole about as much more; lower stem leaves stalked, the uppermost sessile. Racemes mostly in pairs at the apex of the stem and branches, at first rather compact, but in fruit very lax, and from 3 to 7 inches long; fruit pedicels drooping $1\frac{1}{2}$ to 2 inches long, longer than the lanceolate bracts. Calyx in fruit $\frac{3}{8}$ to $\frac{1}{2}$ inch long. Corolla $\frac{1}{4}$ to $\frac{1}{2}$ inch across, brilliant blue; segments ovate-triangular. Anthers nearly sessile, purplish black, connivent, with a purple hornlike appendage on the back about half as long as the anther. Nucules $\frac{1}{16}$ inch long, dim, black, rough, with a white pulvinus at the base projecting much, and filling up nearly the space within the basal ring. Plant light green, hispid with vulnerant hairs seated on tubercles of very unequal sizes.

Common Borage.

French, *Bourrache officinale*. German, *gebräuchliche Boretsch*.

The Borage is one of our oldest garden herbs. It was highly valued by the old herbalists as a cordial and pectoral, and is greatly extolled in all their writings. Gerarde says, "Those of our time do use the flowers in salads, to exhilarate and make the minde glad. There be also many things made of them, used everywhere for the comfort of the hart, for the driving away of sorrowe and increasing the joie of the minde." Burton asserts in his "Anatomy of Melancholy," on the authority of many classic writers, that Borage "was that famous nepenthes of Homer which Polydamna, Thonis's wife (then King of Thebas in Egypt), sent Helena for a token, of such rare virtue that if taken steeped in wine, if wife and children, father and mother, brother and sister, and all thy dearest friends should die before thy face, thou couldst not grieve or shed a tear for them. Helena's commended howl to exhilarate the heart, had no other ingredient, as most of our criticske conjecture, than this of Borage." Bacon remarks, that the "leaf of Burrage hath an excellent spirit to repress the falginous vapour of dusky melancholie." The seeds were administered by the ancient physicians in low fevers and agues, being recommended by one of those superstitious practitioners in doses of "three thyrises" in tertian and four in a quartan ague. Parkinson declares that all parts of the plant "are very cordiale, and helpe to expelle pensiveness and melancholie, that ariseth without manifest cause, whereof came the saying, 'ego borago gaudia semper ago.'" Culpepper tells us that "the leaves and roots are a very cordial; they are used in putrid and pestilential fevers, to defend the heart and help to resist and expel the poyson or the venom of other creatures," and adds, "the leaves, flowers, and seed, all or any of them, are good to expel pensiveness and melancholy; it helpeth to clarify the blood and mitigate heat in fevers." Notwithstanding all these encomiums, we cannot ascertain that the plant possesses any very active qualities, beyond those due to the presence of mucilage and a considerable proportion of alkaline salts, particularly nitrate of potash, which gives a

refrigerating property to the juice. The leaves impart a pleasant coolness to beverages in which they are infused, and are still an ingredient in several favourite drinks, such as "cool tankard," "cider cup," "claret cup," &c. The leaves when boiled may be entire like spinal, and are wholesome and rather agreeable in flavour. The young tops are occasionally put in salads.

The name of the plant has been the subject of much philological enquiry. The derivation given as that of the generic name, from *Corrago*, is generally received, and it is believed our modern word Borage is but a corruption of it. With several other closely allied plants, it was called Bugloss by the early herbalists, a contraction of *βούγλωσσον*, the old Greek name for one of these herbs, which was probably given from the roughness of the leaves, and their shape resembling the tongue of an ox. The notion of its having power to dispel melancholy and exhilarate the mind, seems to have been universally prevalent, for even the Welsh name *Llawenlys* signifies "herb of gladness." Bees are extremely fond of the flowers of the Borage, which abound in honey; it is therefore very desirable to grow it in gardens where they are kept. The plant requires no cultivation; when once introduced it always propagates readily by seed, and is not often injured by the frost. Though naturally a biennial, it often flowers the first year when cultivated in the garden.

GENUS VIII.—**SYMPHYTUM.** *Tournef.*

Calyx 5-cleft or 5-partite. Corolla regular or nearly so, cylindrical-clavate; throat with 5 lanceolate acute scales; limb erect, subcampanulate, 5-toothed. Stamens exerted beyond the corolla tube, but included in the limb; anthers with short filaments, not appendiculate, not connivent round the style. Nucules ovoid, smooth, sunk in and attached to the flat receptacle by a concave surface.

Soft or bristly-hispid herbs, with succulent stems. Flowers in scorpioid racemes arranged in pairs, usually with opposite leaves at their base. Corolla large, yellow, blue, purple, red, or white.

The name of this genus of plants is derived from the Greek word *συνφύα*, to unite, because the species are supposed to agglutinate the lips of wounds.

SPECIES I.—**SYMPHYTUM OFFICINALE.** *Lin.*

PLATES MCXV. MCXVI.

Reich. Ic. Fl. Germ. et. Helv. Vol. XVIII. Tab. MCCCIII. Fig. 1.

Billot. Fl. Gall. et Germ. Exsicc. No. 2887.

Rootstock vertical, passing insensibly into the thick fleshy root, which divides into large branches. Stem very thick, branched, strongly winged above. Leaves ovate or lanceolate, the upper ones, especially the pair at the base of the racemes, strongly decurrent and lanceolate. Calyx segments triangular-lanceolate, acuminate, divided nearly to the base, in fruit submuricated on the central line of each segment, with stiff prickle-like bristles seated on large tubercles.

Corolla about twice as long as the calyx; scales included. Plant clothed with short pubescence, intermixed with harsh bristly hairs, few of them gland-tipped.

Var. *α*, *genuinum*.

PLATE MCXIV.

Corolla ochreous or more or less stained with pale purple.

Var. *β*, *patens*.

PLATE MCXV.

S. patens, *Silbh. Reich. Fl. Germ. Excurs. p. 317.*

Corolla bright dark purple. Leaves rather narrower, less decurrent, and darker green; stems tougher and less succulent, and the branches less spreading than in var. *α*.

By the sides of streams and ditches, and other moist places, and by roadsides. Very common, and generally distributed in England; var. *α* apparently the most abundant. In Scotland var. *α* appears to be rare; the only place where I have seen it is near Rosyth Castle, in Fifeshire; but var. *β* is more common, especially along the banks of the Esk, above Musselburgh, also about Glen Devon and Dollar, Clackmannanshire, though doubtfully wild; in Aberdeenshire, Dr. Dickie believes it to be introduced. In Ireland it is frequent and generally distributed, but I am not aware whether either form is more abundant than the other.

England, Scotland, Ireland. Perennial. Spring, Autumn.

Root of a number of thick fleshy tapering branches, smooth, black externally, passing insensibly upwards into the many-headed rootstock. Stems thick, succulent, angular, erect or decumbent, 1 to 3 feet high, clothed with spreading or slightly reflexed hairs seated on tubercles, intermixed with smaller pubescence. Radical leaves large; lamina 5 to 9 inches long, abruptly contracted at the base into the rather long winged petiole; stem leaves more and more shortly stalked from below upwards, the uppermost quite sessile and strongly decurrent. Racemes in pairs, with 2 opposite leaves at the base, terminating the stem and short axillary branches, which are destitute of leaves, excepting the aforesaid hair. Calyx about $\frac{1}{4}$ inch long in flower, increasing in fruit to from $\frac{5}{8}$ to $\frac{3}{4}$ inch, when the segments are connivent and almost mucronated on the back. Corolla about $\frac{1}{4}$ inch long, very variable in colour, being sometimes ochreous, in which case it is yellow in bud, at other times rich purple, when it is sometimes reddish and sometimes purple in bud. Nucleus ovate-ovoid, attenuated towards the apex, $\frac{1}{2}$ inch long, fuscous, bordered, wrinkled on the back, slightly roughened.

shining. Plant varying considerably in hairiness, but always more or less harsh to the touch.

Var. β has a different aspect, but seems to have no positive characters to separate it from the typical form. The tips of the calyx segments are erect or slightly recurved in both varieties.

Common Comfrey.

French, *Consoude officinale*. German, *gebrüchliche Wallwurz*.

The Comfrey derives its name, according to Dr. Prior, from the Latin word *Confirma*, from its supposed strengthening qualities. It is slightly stringent, and was formerly regarded as a septic and vulnerary. It was known to our fathers by the name of the "great consound." It was also used for "griefes of the lungs," and possibly with good effect, as the leaves, stems, and the root abound in mucilage. The young leaves when boiled form a tolerable vegetable, and are not unfrequently eaten by country people where the plant abounds. They are sometimes used to flavour cakes and other culinary preparations.

The Comfrey is much relished by cattle, particularly by cows, and affords a large crop of herbage, which would prove profitable on moist rich land as a fodder plant. Being perennial it lasts several years without renewal. In moist situations it grows very freely, dying down in winter, but if cut before the flowers quite expand, many crops might be gathered each season. Owing to the successful growth of the plant being only possible on rich and moist land, our agriculturists have paid it but little attention. Professor Buckman, however, tells us that a species of *Symphytum* greatly resembling our common Comfrey was introduced into England from the Caucasus in 1811, and was recommended at the time chiefly as an ornamental plant in shrubberies and large gardens. Recently, however, it has been tried as a green "soiling plant," with very good results. From an analysis of the plant made by Professor Voelcker, it appears to be equal to some of our more important green food crops; and certainly, if we take into consideration the quantity of its produce, there are few plants capable of yielding so much of green food as the Comfrey. Dr. Voelcker says "that the amount of flesh-forming substances is considerable. The juice of this plant contains much green and mucilage, and but little sugar."

SPECIES II.—*SYMPHYTUM TUBEROSUM*. Linn.

PLATE MCXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCIV.

Billot. Fl. Gall. et Germ. Exsicc. No. 2713.

Rootstock horizontal, tuberous, knotted, fleshy, præmorse, branched, with slender root fibres. Stem rather thick, simple or nearly so, very slightly winged above. Leaves all oval or elliptical-oval, the upper ones slightly decurrent, especially the pair at the base of the racemes. Calyx segments strapshaped, divided nearly to the base, in fruit not mucated, the hairs being seated on inconspicuous tubercles. Corolla about twice as long as the calyx; scales included. Plant clothed with minute pubescence, intermixed with rather harsh bristly hairs, many of them gland-tipped.

In woods and bushy places, and by the sides of streams. Rare in England, where it is said to occur near Dedham in Essex, and in various other places, but is not certainly native south of North Wales and Yorkshire. In the south of Scotland it is rather common, but does not extend north of Moray, Banff, Aberdeen, and Argyle. In Ireland it has occurred in Ulster and Cork, but is believed not to be native.

England, Scotland, [Ireland.] Perennial. Spring, early Summer.

Rootstock fleshy, branching, the divisions somewhat resembling the tubers of the Jerusalem artichoke (but smaller), pale brown, producing at the apex stems, but no tufts of radical leaves, as in *S. officinale*. The stems are 1 to 2 feet high, flexuous, much less winged and less hairy than in *S. officinale*; the leaves taper towards the base as well as the apex, and are more rugose, much less rough, and with the hairs on the under side of the veins much fewer and shorter; the calyx segments are longer, narrower, and less bristly. Corolla about $\frac{1}{4}$ inch long, ochreous, but rather deeper in colour than in *S. officinale*. The plant is of a paler and yellower green, and the lower leaves have turned brown or withered before the flowers expand. The mature fruit I have not seen, but, according to M. Godron, it is tubercular and contracted above the base.

Tuberous Comfrey.

French, *Consoude tubéreuse*. German, *dickwurzelige Wallwurz*.

TRIBE II.—CYNOGLOSSEÆ.

Achenes 4, all free, much depressed, inserted upon a convex or conical torus.

GENUS IX.—CYNOGLOSSUM. *Tournef.*

Calyx 5-partite. Corolla regular, salvershaped-funnelshaped; throat closed by 5 obtuse scales; limb concave, 5-lobed. Stamens included. Nucleus triangular-roundish, depressed, generally mucated with hooked spines, attached by their inner edge to the shortly-conical receptacle, and forming a flattened 4-sided pyramid.

Softly hairy herbs, rarely undershrubs. Flowers in scorpioid racemes. Corolla blue, purple, red, or white.

The origin of the name of this genus of plants is *κῆνρ*, a dog, and *γλῶσση*, a tongue, from its fancied likeness.

SPECIES I.—**CYNOGLOSSUM OFFICINALE.** *Linn.*

PLATE MCXVIII.

*Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXXX.**Billot, Fl. Gall. et Germ. Exsicc. No. 2888.*

Radical leaves elliptical or lanceolate-elliptical, attenuated into rather long petioles; stem leaves crowded, strapshaped or narrowly lanceolate; the lower ones shortly stalked, the intermediate ones narrowed towards the base, the uppermost ones semi-amplexicaul. Racemes commonly without bracts. Calyx segments ovate, obtuse, shorter than the corolla. Nucules with a prominent margin thickly studded with stout hooked-pointed spines; the disk of the face also sparingly armed with hooked spines. Whole plant, especially the racemes and calyces, densely clothed with short silky cottony hairs, soft to the touch.

Var. *α*, *genuinum*.

Leaves softly pubescent on both sides, greyish green, and dull above.

Var. *β*, *subglabrum*.

Leaves nearly glabrous, green and shining above.

In waste places, by the borders of fields and roadsides, and on sand hills by the seashore. Rather rare. Generally distributed in England. Thinly spread over the south of Scotland, where it seems to be most plentiful along the east coast, and certainly indigenous in Haddington and Fife; in Aberdeenshire, Ross, and Moray it occurs, though it is believed to be an introduced plant in these localities; it is reported by Lowe as found in Orkney, but I never saw it there or was able to hear of its recent occurrence. Rare in Ireland, and confined to the south and east. The var. *β* is reported by Dr. Bromfield to occur in several places in the Isle of Wight.

England, Scotland, Ireland. Biennial or Perennial. (?) Spring, Summer.

Root a thick, fleshy, tapering tap-root with a black rind, producing the first year a tuft of radical leaves on rather long stalks, with the lamina 4 inches to 1 foot long. In the succeeding year the flowering stem is produced, which is stout, stiff, round, 1 to 3 feet high, branched in the upper part, and very thickly clothed with leaves. Lower stem leaves attenuated into a petiole at the base; the upper ones sessile, shorter, and rather broader in proportion. Racemes in a pair at the extremity of the stem, and solitary at the apex of the branches, lengthening in fruit until they are from 4 to 8 inches long. Pedicels

curved and spreading, in fruit longer than the calyx, some of the lower ones occasionally with a leaflike bract at the base. Corolla nearly $\frac{1}{2}$ inch across, dull lurid red, veined. Nucules greyish-brown, $\frac{1}{4}$ inch long, surrounded by a raised band, very thickly studded with short doubly hooked spines. Pubescence variable in quantity, very soft to the touch, completely hiding the small tubercles at the base of the hairs on the upper side of the leaves in var. α , which, however, passes insensibly into var. β , which has the leaves green and somewhat shining above. Plant smelling of mice.

Sometimes the root does not die after flowering, but produces barren tufts, which flower in the third year, so that it becomes "perennant."

Common Hound's Tongue.

French, *Cynoglosse officinale*. German, *gebräuchliche Hundzunge*.

This plant was formerly employed in medicine, but is no longer used. It is narcotic and somewhat astringent, and has been given with advantage in serofulous complaints in the form of decoction, and also applied externally, but its very disagreeable scent has caused it to be discarded from modern practice. Among the older physicians it was regarded as an anti-spasmodic, and Sir Wm. Coles tells us in his "Art of Simpling," that it "will tye the tongues of houndes, so that they shall not bark at you, if it be laid under the bottom of your feet as Miraldus writeth."

SPECIES II.—**CYNOGLOSSUM MONTANUM.** *Lam.*

PLATE MCXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXXIII. Fig. 1.

Billot. Fl. Gall. et Germ. Exsicc. No. 3160.

C. sylvaticum, "*H. lutea*;" *Sm.* Engl. Bot. No. 1642. *Hook. & Arn.* Brit. Fl. ed. viii p. 296.

Radical leaves elliptical, attenuated into rather long petioles; stem leaves rather distant, the lowest ones stalked, elliptical, the intermediate and upper ones oblong-elliptical, often more or less panduriform, broad at the base and amplexicaul. Racemes commonly without bracts. Calyx segments strap-shaped or oblong-strap-shaped, nearly as long as the corolla. Nucules without a prominent margin, but with the spines usually larger towards the margins than in the centre of the disk of the face. Plant green, clothed with very thin short pubescence, harsh to the touch.

In waste places and woods. Rare. It occurs in Surrey, Essex, Middlesex, Northampton, Gloucester, Warwick, and Oxford. In Scotland it is found in the counties of Perth and Forfar, but doubtfully native. In Ireland it is very rare, and has only been found near Dublin, where it is perhaps not native.

England, [Scotland,] Ireland. Biennial. Spring, Summer.

This has very much the appearance of the green-leaved varieties of *C. officinale*, but it is a more slender plant, with the stem somewhat flexuous, 1 to 2 feet high; stem leaves not nearly so numerous, larger, and much broader, the intermediate ones narrowed above the dilated and clasping base, and having much the shape of those of *Hieracium prenanthoides*, green on both sides, and thinly clothed with hairs seated on tubercles, which make them feel rough to the touch. The flowers when expanded are about $\frac{3}{8}$ inch across, dull blue, with reddish veins. The calyx segments are much narrower, and elongate much more in fruit. The nucules are about the same size, but have not the prominent border of those of *C. officinale*, and the fruiting racemes are usually more lax.

Green-leaved Hound's Tongue.

French, *Cynoglosse de montagne*. German, *Berg-Hundzunge*.

GENUS X.—ASPERUGO. *Tournef.*

Calyx when in flower nearly regular, deeply 5-cleft, in fruit 2-lobed, with the lobes valvate, closed, flattish, palmately laciniate, the one 6 and the other 7-toothed. Corolla funnelshaped-salvershaped; the throat closed by 5 obtuse scales; limb concave, 5-lobed. Stamens included. Nucules laterally compressed, nearly smooth with raised dots, attached by their narrow inner edge to the conical receptacle.

A rough herb with fragile juicy stems, and small axillary purplish blue flowers. Calyx much enlarged and veined in fruit, somewhat like the perianth of the female flowers of the genus *Atriplex*.

The derivation of the name of this genus of plants is from *Asper*, rough, on account of the rough leaves and stems of the species.

SPECIES I.—ASPERUGO PROCUMBENS. *Linn.*

PLATE MCXX.

Reich, Ic. Fl. Gall. et Germ. et Helv. Vol. XVIII. Tab. MCCXXVII.

Billot, Fl. Gall. et Germ. Exsicc. No. 1275.

The only known species.

In waste places and cultivated ground. Rare, and very doubtfully native, though it has occurred in many places, but is apparently not persistent in any locality. I have gathered it near Carnoustie in Forfarshire, and at Port Mahomack on the Dornoch Firth.

[England, Scotland.] Annual. Spring, Summer.

Stems 1 to 3 feet long, procumbent or trailing, succulent, brittle, angular, thinly studded with reflexed prickles, by which they readily

adhere to the clothes of passers-by and to the coats of animals. Leaves oblanceolate, subobtusate, the lower ones narrowed into winged petioles, and slightly decurrent, those on the upper part of the stem scarcely stalked, nearly opposite, or 3 or 4 in a whorl, more or less clothed with hairs, many of which are hooked-pointed. Peduncles very short, at first erect, afterwards recurved, 1-flowered. Corolla $\frac{1}{6}$ inch across, dull purplish blue. Calyx in fruit $\frac{1}{2}$ inch long, dorsally compressed, of 2 palmately lacinate valves, adpressed to each other, with a prominent network of veins, sparingly ciliated and clothed with bristly hairs. Nucules yellowish-grey, $\frac{1}{5}$ inch long, thickly studded with smooth white scalelike patches.

German Mudwort.

French, *Rapette couchée*. German, *Liegendes Schlangengünglein*.

EXCLUDED SPECIES.

MERTENSIA VIRGINICA. *Desf.*

According to Dr. Bromfield, this plant was found by the Rev. M. Nicholls in the ruins of an old castle near Netley Abbey, Hants.

SYMPHYTUM ORIENTALE. *Lin.*

Has been noticed in an apparently wild state in England, but possesses no claim to be considered native. (*Bab. Man.*) I have not seen specimens.

SYMPHYTUM TAURICUM. *Willd.*

Occurs as a garden escape at Allesley, Warwickshire, and on a hedge-bank near the Observatory, Cambridge.

SYMPHYTUM ASPERRIMUM. *M. Bieb.*

Near the head of the valley leading from Oakfort to the Rocks, Bath. Mr. T. B. Flower has, however, been unable to find it this year (1866), so it has probably disappeared. It formerly grew also at Duck-street, between Audley End and Littlebury, Essex, but has not been seen there for some time. It also used to grow near Mickleham, Surrey, but in 1866 I could not find it in the station where ten years ago I collected it.

ECHINOSPERMUM LAPPULA. *Lehm.*

Occurred many years ago on shingle at Southwold, Sussex. It was

also found in 1841 near Ware Mill, Herefordshire, probably introduced with flax. In 1864 I saw several plants of it on the shingle round Sandown Mill at Deal, but doubtless it had been introduced with foreign grain. It has, I believe, also occurred near Paisley, but does not become permanently naturalised in this country.

ECHINOSPERMUM DEFLEXUM. *Lehm.*

In 1846 this species was gathered under a hedge at Charlton House, near Alton, in Hampshire.

ORDER LV.—LENTIBULARIACEÆ.

Aquatic or marsh herbs, with the leaves submerged or finely divided in the former case or sometimes absent, and in the marsh plants in radical rosettes and entire. Flowers perfect, irregular, solitary or in racemes, on leafless scapes. Calyx free from the ovary, persistent, 2 to 5-partite, more or less bilabiate. Corolla deciduous, hypogynous, monopetalous, bilabiate, the tube spurred at the base, the upper lip the shorter, 2-cleft, the lower lip undivided or 3-cleft. Stamens 2, inserted on the base of the corolla under the upper lip, included. Ovary free, 1-celled, with a free globose, central placenta, and a single apical style; stigma bilabiate, with the lower lobe much the larger and dilated. Capsule globose or ovoid, acuminate, 2-valved, and bursting irregularly or transversely. Seeds numerous, minute, with a rugose testa; without albumen.

GENUS I.—PINGUICULA. *Tournef.*

Calyx 2-lipped, the upper lip 3-toothed or -cleft or -partite, the lower 2-toothed or -cleft or -partite. Corolla 2-lipped, ringent, spurred at the base below; the upper lip 2-cleft or 2-partite, the lower lip 3-cleft or 3-partite, and usually larger than the upper; palate not closing the throat. Capsule 2-valved.

Bog herbs with fleshy leaves in a radical rosette, often recurving when the plant is pulled up. Flowers drooping, on 1-flowered axillary scapes. Corolla purple, lilac, blue, yellow, or variegated. Capsule erect.

The name of this genus of plants comes from *Pinguis*, fat, from the unctuous nature of the species

SPECIES I.—**PINGUICULA VULGARIS.** *Lin.*

PLATE MCXXI.

*Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXIX.**Billot, Fl. Gall. et Germ. Exsicc. No. 2502.*

Leaves thick, fleshy, oblong, obtuse. Calyx segments deltoid-ovate, acute. Corolla bilabiate; tube longer than the limb; spur shorter than the lower lip, subulate, nearly straight, acute or faintly notched; segments of the lower lip roundish, usually not contiguous, much longer than the upper lip. Capsule ovoid-conical, acute.

On bogs and wet heaths. Generally distributed, but very local in the south of England; more common in the north. Common and generally distributed throughout Scotland. Generally distributed in Ireland, but rare in the south.

England, Scotland, Ireland. Perennial. Summer.

Leaves sessile, spreading, in a radical rosette, $1\frac{1}{2}$ to 3 inches long, involute, curving back when the plant is pulled up. Scapes usually numerous, from the axils of the leaves, 4 to 8 inches high, 1-flowered. Flower drooping, $\frac{1}{2}$ to $\frac{3}{4}$ inch long (exclusive of the spur), funnel-shaped, dark purplish blue; lower lip longer than broad, exceeding the upper one, with 3 nearly equal lobes, the middle lobe a little longer than the others; spur nearly in a line with the lower side of the corolla. Capsule erect, twice as long as the calyx, dark reddish-brown. Leaves pale green, unctuous to the touch, very smooth, shining, when fresh covered with minute pale dots; scapes dull purple; plant glabrous, the upper part of the scape, calyx, and corolla with a few short gland-tipped hairs. The Rev. W. W. Newbould tells me he has found this species with the lobes of the lower lip contiguous.

Common Butterwort.

French, *Grassette commune.* German, *Gemeines Fettkraut.*

The common name of this plant was undoubtedly given to it from its greasy appearance and feel, as if, says Sir William Coles, "melted butter had been poured over it." It is one of the many marsh plants that have the credit among moorland farmers of causing the rot in sheep; but the leaves are never eaten by these animals. Every part of the plant is cathartic, and the leaves are frequently employed by the Welsh peasantry as a purgative medicine. Bruised, they are applied to cracks in the milkers of cows or to chapped hands: the latter use of the herb is suggested by old Gerarde.

In Lapland the freshly-gathered leaves are placed upon a steamer, through which the milk of the reindeer is poured, or the warm milk is poured upon them, and allowed to stand for a day or two, it then turns slightly sour and becomes very thick and tenacious, the whey and cream remaining unseparated. A small quantity of this curdled milk, added to the fresh liquid, will cause the same change to take place. Milk thus prepared is a favourite article of diet with the Laplanders and Norwegians.

SPECIES II.—**PINGUICULA GRANDIFLORA.** *Lam.*

PLATE MCXXII.

*Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXX. Fig. 1.**P. vulgaris* var., *Benth. Handbk. Brit. Bot. ed. ii. p. 308.*

Leaves rather thin, slightly fleshy, oval-oblong or elliptical-oblong, obtuse. Calyx segments roundish-obovate, very obtuse. Corolla bilabiate; tube shorter than the limb; spur generally longer than the lower lip, nearly straight, commonly notched or even bidentate; segments of the lower lip obovate or quadrate-obovate, truncate, overlapping, much longer than the upper lip. Capsule roundish-ovoid, subacute.

On bogs and wet heaths. Very local. Confined to the south-west of Ireland, where it occurs abundantly in some parts of Cork and Kerry.

Ireland. Perennial. Spring, Summer.

P. grandiflora bears considerable resemblance to *P. vulgaris*, but I cannot conceive how anyone who has seen the plants alive can consider them as the same species. In *P. grandiflora* the leaves (at least in the Irish plant) are much broader in the middle, have the margins less recurved, and are of a much thinner texture, approaching that of *P. alpina*; the flowers are larger, 1 inch long (exclusive of the spur), and with the lower lip nearly as broad, and with much larger segments, which are narrowed towards the base, and truncate at the apex, strongly veined; the spur is usually longer than that of *P. vulgaris*, and frequently with 2 short forks at the apex. The calyx segments are also much blunter, and the colour of the flower is a brighter blue.

Large-flowered Butterwort.

French, *Grassette à grandes fleurs.*

SPECIES III.—**PINGUICULA ALPINA.** *Linn.*

PLATE MCXXIII.

*Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXXI. Figs. 3 and 4.**Billot, Fl. Gall. et Germ. Exsicc. No. 3146.*

Leaves rather thin, slightly fleshy, oblong-elliptical or oblong, obtuse. Calyx segments deltoid-ovate, subobtus. Corolla bilabiate; tube about as long as the limb; spur much shorter than the lower lip, bent outwards into a quadrant, conical, blunt, nearly at right angles with the lower side of the corolla; lateral segments of the lower lip roundish, the middle one obovate, truncate, much longer than the upper lip. Capsule roundish-ovoid, shortly acuminate.

In bogs. Very rare. In the bogs of Auchterflow and Shannan on the Rosehaugh property in Ross-shire, and in the Isle of Skye.

Scotland. Perennial. Spring, early Summer.

Leaves resembling those of *P. vulgaris*, but rarely more than 1 inch long, much thinner, less fleshy, and more translucent. Scapes 2 to 6 inches high. Calyx with the segments of the upper lip short, the lower lip with the segments reduced to 2 teeth at the apex. Corolla $\frac{1}{2}$ inch long, white, tinged with yellow, clothed with yellow hairs within at the base of the lower lip; spur not much longer than broad, forming nearly a right angle with the lower side of the corolla.

Alpine Butterwort.

French, *Grassette jaunâtre.*

SPECIES IV.—*PINGUICULA LUSITANICA*. *Lin.*

PLATE MCXXIV.

Reichb. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXXI. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1307.

Leaves thin, membranous, translucent, oval or oblong-oval, obtuse. Calyx segments roundish-ovate, obtuse. Corolla bilabiate; tube longer than the limb; spur much shorter than the lower lip, bent outwards at a right angle with the under side of the corolla, cylindrical, blunt; segments of the lower lip nearly equal, subquadrate, emarginate, scarcely exceeding the upper lip. Capsule subglobular, obtuse.

In bogs. Local. Abundant in the south-west of England, particularly in Devon and Cornwall, and in the western counties of Scotland, reaching north to Orkney. The county of Ross is the only one in which it approaches the eastern side of the kingdom. In Ireland it is frequent, though more abundant in the west of the island.

England, Scotland, Ireland. Perennial. (?) Summer, Autumn.

Leaves $\frac{1}{2}$ to 1 inch long, very thin, and almost translucent, dull green, and with the same greasy lustre as those of the preceding species. Scapes 2 to 5 inches high, very slender, clothed with short gland-tipped hairs through their whole extent and not merely at the apex. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long, white, tinged with lilac on the limb, with the throat yellow. Capsule much smaller than in any of the preceding and nearly globose.

This plant has sometimes been confounded with *P. alpina*, but is a much more slender plant; the calyx has the lips much more deeply divided into segments; the corolla has the lips and segments nearly equal, and the spur does not taper towards the apex.

Pale Butterwort.

French, *Grassette de Portugal.*

GENUS II.—UTRICULARIA. *Linn.*

Calyx divided to the base into 2 lobes, the upper lobe entire, the lower often notched or 2-toothed. Corolla 2-lipped, personate, spurred at the base below; upper lip entire or emarginate, lower lip entire or 3-lobed, generally much larger than the upper. Capsule opening in various modes, or indehiscent.

Aquatic plants with the leaves generally divided into capillary segments, usually floating by small bladders attached to the segments or on separate branches. Flowers on scapes, racemose, or solitary, yellow, purple, or blue.

The name of this genus of plants is derived from the Latin word *Uter*, a bottle, and signifies a little bottle, or bladder, or vesicle, referring to appendages of this sort on the stems and leaves of the species, causing them to float on the surface of water.

SPECIES I.—UTRICULARIA VULGARIS. *Linn.*

PLATE MCXXV.

Reich. Ic. Fl. Germ. et Holv. Vol. XX. Tab. MDCCCXXII.

Leaves spreading in all directions, ovate in outline, two or three times pinnately multifid, with the ultimate segments capillary, bristly only when young, furnished with ovoid bladders. Pedicels two to three times as long as the calyx, recurved and reflexed after flowering. Corolla with the upper lip about as long as the projecting bilobed palate; under lip with reflexed margins which scarcely project beyond the palate. Spur conical, acute, bent forward and downward, adpressed to the lower lip, of which it is about half the length. Anthers coherent.

In ponds, ditches, and pits. Rather scarce, but generally distributed throughout the three kingdoms.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Plant floating in the water and not rooting, sending out from one point numerous leafy stems, 6 to 18 inches long, with alternate leaves $\frac{3}{4}$ to 2 inches long, divided into hairlike segments; these leaves are more or less thickly furnished with small ovoid bladders about the size of hemp seed. From the central point of these leafy shoots the flowering stem, 3 to 9 inches long, is sent up, rising above the water, and terminating in a short raceme of from 3 to 10 flowers. Pedicels each with a bract at the base, at first erect, afterwards recurved until the fruit is pendulous, and much longer than the calyx. Calyx with the lips divaricate, ovate, acuminate. Corolla about $\frac{3}{4}$ inch long,

yellow, streaked with a few separate pale red lines on the palate; under lip much larger than the upper, with the margins reflexed at right angles all round. Capsule globular, cuspidate. Plant usually reddish-olive; the young leaves with tufts of very short hairs on the segments.

Greater Bladderwort.

French, *Utriculaire commune*. German, *Gemeiner Wasserhelm*.

The leaves of this plant are furnished with numerous membranaceous vesicles or small bladders, which, during the early stage of the plant, are filled with water, but when the flowers are ready to expand are filled with air. After the season of blossoming, the vesicles become again filled with water, and the plant descends to ripen its seeds at the bottom. There are many foreign species which are highly ornamental in the places where they grow, but they are seldom cultivated.

SPECIES II.—*UTRICULARIA NEGLECTA*. *Lehm.*

PLATE MCXXV. *bis.*

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXXIV. Figs. 1 to 3.

U. major, "Schmidel," *Reich. fil. l. c.* p. 113.

Leaves spreading in all directions, oval in outline, two or three times pinnatifidly multifid, with the ultimate segments capillary, "not bristly even when young" (*Reich.*), furnished with ovoid bladders. Pedicels 4 to 6 times as long as the calyx, straight and ascending after flowering. Corolla with the upper lip twice or thrice as long as the projecting bilobed palate; under lip with a broad flat spreading margin, which projects greatly beyond the palate; spur conical, acute, bent forwards and downwards but not adpressed to the under lip of the corolla, of which it is about half the length. Anthers coherent.

In ponds and ditches. Apparently very rare, but likely to be passed over as *U. vulgaris*. The only specimen I have seen is from a pond at Broomfield near Newlands Wood, Essex, collected in 1837 by Mr. A. Wallis. A plant in the British Museum Herbarium collected by Edward Forster in a pit in Hainault Forest probably belongs to this species.

England. Perennial. Late Summer.

Extremely similar to *U. vulgaris*, but certainly a distinct species. It is about the same size, but much more slender, the segments of the leaves finer, the bladders smaller and fewer in number; the pedicels much more slender, much longer, and not recurved after flowering; the calyx is also much shorter. The greatest difference, however, is in the small size of the palate, which is shorter and much narrower in proportion; the margin of the lower lip also spreads horizontally, instead of (as in *U. vulgaris*) being bent down at right angles to the plane of the slit between the upper and under lip. I have not seen the flowers

in a recent state, but M. de Brébisson states that the palate is striated with numerous anastomosing bright red streaks.

SPECIES III.—**UTRICULARIA MINOR.** *Linn.*

PLATE MCXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXXVI. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 7.

Leaves spreading in all directions, ovate in outline, two or three times dichotomously multifid, with the ultimate segments capillary, not bristly even when young, furnished with minute ovoid bladders. Pedicels twice or thrice as long as the calyx, spreading and slightly recurved after flowering. Corolla with the upper lip about as long as the depressed palate; under lip with a flat spreading margin which projects greatly beyond the palate; spur reduced to a small tubercle, scarcely longer than broad. Anthers not coherent.

In ponds and ditches. Rather rare, but generally distributed throughout the three kingdoms.

England, Scotland, Ireland. Perennial. Summer, Autumn.

A very much smaller plant than *U. neglecta*; the stems rarely more than 6 inches long, and the leaves $\frac{1}{8}$ to $\frac{1}{2}$ inch long. Flowering stems capillary, 2 to 6 inches long, bearing a raceme of 3 to 10 flowers. Corolla about $\frac{3}{8}$ inch long, very pale yellow, with the palate inconspicuous, forming a ring like a horseshoe, with the margins of the lower lip extending greatly beyond it. Plant greenish-olive; young leaves without tufts of hair.

Lesser Bladderwort.

French, *Utriculaire naine.* German, *Kleiner Wasserhelm.*

SPECIES IV.—**UTRICULARIA INTERMEDIA.** *Hayne.*

PLATE MCXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCXXIX. Fig. 4.

Leaves distichous, roundish in outline, two or three times dichotomously multifid, with the ultimate segments linear, flattish, the margins bristly, destitute of badders, which are borne upon separate leafless branches. Corolla with the upper lip twice as long as the projecting palate; under lip with a flat spreading margin, which projects greatly beyond the palate; spur conical, acute, bent forwards, and adpressed to the under lip, of which it is nearly the length. Anthers not coherent.

In ponds and ditches. Rare, but widely distributed, extending from Devon and Dorset to Sutherland, though it is difficult to give

the exact distribution, this species having been confounded with *N. minor*.

England, Scotland, Ireland. Perennial. Summer, Autumn.

With this plant I am very imperfectly acquainted, having seen very few British specimens, and none of these in flower. The barren stems of those I have are 2 to 4 inches long, with the leaves distichous; the bladder-bearing stems are shorter and destitute of leaves; the segments of the leaves are all in one plane, so that the stems have not the shape of a fox's tail, as in *U. vulgaris* and *U. neglecta*, or of a slender bottle-brush as in *U. minor*; the segments are also broader and flatter. Bladders about the size of those of *U. vulgaris*. The scape in the foreign specimens I have seen is 4 to 6 inches high, bearing 2 to 5 flowers. Corolla about $\frac{1}{2}$ inch long; the lower lip with the borders not reflexed, and the colour is said to be pale yellow, with purple stripes on the palate. The leaves appear to always of a bright green.

Intermediate Bladder Wort.

French, *Utriculaire intermediaire*. German, *Mittlerer Wasserhelm*.

ORDER LVI.—PRIMULACEÆ.

Annual or perennial herbs, very rarely undershrubs. Leaves often all radical, or, when there is a stem, opposite or verticillate or alternate, usually undivided, without stipules. Flowers perfect, regular or nearly so, variously disposed, generally showy. Calyx free from the ovary, or rarely partially adherent, usually persistent, 5-cleft or 5-partite, rarely 4-, 6-, or 7-cleft. Corolla deciduous or marcescent (very rarely absent), hypogynous, rotate or salver-shaped or funnel-shaped, with the segments of the limb as many as the divisions of the calyx. Fertile stamens as many as the segments of the corolla (*i.e.* commonly five), and opposite to them, sometimes with abortive stamens, represented by filaments or scales between the fertile ones. Ovary free, very rarely with the base adhering to the calyx, 1-celled, with a free central globose placenta; style terminal, simple; stigma undivided; ovules usually numerous. Fruit a capsule, opening by as many valves as there are lobes in the calyx, or twice as many, on account of each valve being cleft, more rarely splitting horizontally, and with the lid falling off. Seeds numerous, rarely definite; albumen dense, fleshy or horny.

GENUS I.—HOTTONIA. *Linn.*

Calyx 5-partite, free from the ovary. Corolla deciduous, salver-shaped; tube short; limb nearly flat, 5-lobed, the segments with

gibbous glands at the base. Stamens 5. Capsule globular, opening by 5 valves, which remain adherent at the base and at the apex. Seeds anatropous.

Water plants, with submersed, finely divided leaves, and verticillate lilac or white flowers, disposed in a raceme, the internodes between the whorls cylindrical or inflated.

The name of this genus of plants was given in honour of Peter Hotton, a famous Dutch botanist, author of some works on medical plants.

SPECIES I.—**HOTTONIA PALUSTRIS.** *Linn.*

PLATE MCXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXI. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 264.

Leaves pectinate. Flowers pedicellate, in whorls arranged in a raceme at the extremity of a long solitary cylindrical leafless scape. Calyx segments strapshaped, subacute, as long as the tube of the corolla.

In ditches, ponds, and pits. Rather rare, but widely distributed over England, though scarce in the western counties. Rare in Ireland, and known to occur only in Co. Down.

England, Ireland. Perennial. Spring, Summer.

Rootstock creeping or floating, with numerous fibres; with barren stems commonly given out from the point from which the scape springs, at the base of which there is an imperfect rosette of leaves. Leaves all submerged, 1 to 4 inches long, mostly irregularly verticillate; the segments all in one plane, linear, acute. Scares rising out of the water, 9 inches to 2 feet high. Flowers 3 to 8 in a whorl. Pedicels longer than the calyx, spreading-ascending in flower, reflexed and recurved in fruit, with short strapshaped bracts at the base. Corolla salvershaped, $\frac{3}{4}$ inch across, pale lilac or pink, with a yellow eye; segments of the limb obtuse or emarginate. Capsule about the size of a sweet pea seed. Plant pale green: the leaves translucent; upper part of the scape, pedicels, and sepals clothed with short gland-tipped hairs.

Water Violet.

French, *Hottone des marais.* German, *Sumf Hottonie.*

GENUS II.—**PRIMULA.** *Linn.*

Calyx 5-toothed or 5-cleft, free from the ovary. Corolla deciduous, salvershaped; tube elongated; limb flat or concave, sometimes slightly

oblique, 5-lobed. Stamens five. Capsule globular or ovate ovoid, opening at the apex by 5 entire or 2-cleft valves. Seeds numerous, amphitropous.

Herbs with the leaves generally all in a radical rosette. Scapes simple; flowers in terminal umbels, more rarely in whorls. Many of the species of this genus present dimorphous flowers, some individuals having the anthers in the throat of the corolla, concealing the stigma, while in others the anthers are situated in the tube, and the stigma is exerted upon a longer style. These two forms are shown by Mr. Darwin to be an approach to diocious flowers, few seeds being produced from either class of individuals by themselves.

The commonly accepted derivation of the name of this genus of plants is from the Latin word *Primulus*, very early, on account of the species flowering early in the spring.

SECTION I.—PRIMULASTRUM. *Duby.*

Calyx with 5 angles, about as long as the tube of the corolla. Leaves evergreen, rugose, not mealy beneath, with revolute margins when young. Bracts of the involucre saccate at the base.

SPECIES I.—PRIMULA VULGARIS. *Holt.**

PLATE MCXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCI. Figs. 2 and 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 165.

P. veris, γ , *acaulis*, *Lim.* Sp. Plant, p. 205.

P. veris, var. α , *Benth. Handbk. Brit. Bot. ed. ii. p. 302.*

P. acaulis, *Jacq., Koch, Syn. Fl. Germ. et Helv. ed. ii. p. 673.*

P. grandiflora, *Less. Desq. in D.C. Prod. Vol. XVIII. p. 37. Gren. & Godr. Fl. de Fr. Vol. II. p. 447. Fries. Summ. Veg. Scand. p. 21.*

P. sylvestris, *Scop. Reich. fl. l. c. p. 35.*

Leaves oblanceolate, gradually narrowed to the base, without a distinct petiole, rounded at the apex, irregularly crose-denticulate. Umbel sessile, always (?) destitute of a scape; pedicels many times exceeding

* I have retained the name *P. vulgaris*, by which the Primrose is universally known in this country, though by right of priority of nomenclature there is no doubt it should bear that of *P. acaulis*, which was applied to it by Linnaeus, who distinguished the form, although considering it as a variety, and not a species. I should have adopted his name had it been generally known by it on the continent. As it is, however, there is no unanimity among continental authors in adopting *P. acaulis*, so it is better to apply to the Primrose the name which British authors agree in calling it, confining myself to a protest in favour of the priority of Linnaeus' name for this species.

the calyx, sub-erect. Calyx 5-sided-prismatic; teeth nearly two-fifths the length of the tube, narrowly triangular-lanceolate, acute. Limb of the corolla about twice as broad across as the length of the tube, rotately spreading; segments suborbicular, flat; throat slightly contracted, with 5 folds. Capsule ovate-ovoid, as long as the calyx tube. Pubescence on the pedicels and angles of the calyx of long shaggy jointed hairs.

In woods, hedgebanks, meadows, and the borders of fields, and by the sides of streams. Very common, and universally distributed.

England, Scotland, Ireland. Perennial. Spring, early Summer.

Rootstock thick, with fleshy scales, formed by the bases of decayed leaves. Leaves in a rosette, when full grown from 4 to 9 inches long, attenuated towards the base, so that the lower part may be described either as a winged petiole or as the narrowed base of the lamina, the margins faintly denticulated, and in addition commonly scalloped towards the base, revolute when young, rugose, from the veins being impressed on the upper side, and prominent beneath. Scape always* undeveloped. Bracts at the base of the pedicels linear, gradually tapering to the acute point. Pedicels when full grown 3 to 6 inches long, clothed with hairs longer than the diameter of the pedicels. Calyx $\frac{5}{8}$ to $\frac{7}{8}$ inch long, with a sharp angle running down from each of the teeth, and upon this angle there are hairs similar to those on the pedicels; the margins of the teeth have similar but rather shorter hairs. Corolla $1\frac{1}{4}$ to 2 inches across, pale yellow with an orange-yellow mark at the base of each segment, sometimes more or less purple or rarely white; segments deeply notched or obcordate at the apex; throat with a groove in the middle of each segment, and a slightly raised bilobed boss between each of the grooves. Fruit pedicel lying on the ground. Fruit-calyx with the segments sub-comnivent over the capsule. Plant green, the leaves paler beneath, and when young often thickly clothed with arachnoid hairs.

Common Primrose.

French, *Primevère du printemps*. German, *Himmelschlüssel-Schlüsselblume*.

The ordinarily accepted etymology of the name of this well-known plant, as signifying the first spring flower, is objected to by Dr. Prior, who writes thus: "Primrose, from *Pryme rolles*, the name it bears in old books and MSS. The Grete Herbale says, 'It is called Pryme Rolles of pryme tyme, because it beareth the first floure in pryme tyme.' It is also called so in Frere Randolph's catalogue. Chaucer writes it in one word, *primerole*. This common plant affords a most extraordinary example

* A plant differing solely by the presence of a scape sometimes occurs, but I suspect it to be a hybrid, as I never knew it to be met with in districts where *P. officinalis* does not grow.

of blundering. *Primrose* is an abbreviation of French *primaverole*, Italian *primaverola*, dim. of *primavera*, from *per di prima vera*, the first spring flower. *Primrose*, as an outlandish, unintelligible word, was soon familiarised into *prime roses*, and this into *primrose*. This is explained in popular works as meaning the first rose of the spring, a name that never would have been given to a plant that in form and colour is so unlike a rose. But the rightful claimant of it, strange to say, is the daisy, which in the south of Europe is a common and conspicuous flower in early spring, while the Primrose is an extremely rare one, and it is the daisy that bears the name in all the old books." The roots of the Primrose are emetic, and Gerard reports that a drachm and a half in the powdered state act strongly and safely. A wine resembling cowslip wine is also made from Primroses; and we have lately seen a receipt for making a Primrose pudding. Pretty flower as it is, all animals reject it as food, excepting the pig. The common Primrose is peculiarly the flower of pleasant associations—not the varieties, single and double, which are cultivated in the gardens, or the like Primrose, to which we give the name but in courtesy—it is the sulphur-coloured Primrose of our youth which speaks to us of the early days of spring, and the first ramble in the meadows or by the hedge-side. It is peculiarly the flower of an English home, and we remember seeing, in one of our picture exhibitions, an attractive painting of the arrival of a growing plant of bright Primroses on the shores of Australia. The eager gaze of those who loved the flower which spoke to them of home and childhood, and the anxiety to look upon it, are well depicted. We believe it to be a fact that this plant was exhibited for some time in the city where it arrived, at a fixed charge, to admiring thousands. We all know and love some retired spot

"Where the hardy Primrose peeps
From the dark dell's entangled steepes."

The Isle of Wight, and indeed the whole of the south of England, abounds with Primroses in the early part of the year, and we have lately been interested by tracing their relation to the cowslips in form, and the tendency there evidently is for one variety to run into the other. We have seen Primroses becoming small, and growing two or three on one stalk, on a plant bearing single stalked Primroses, and cowslip flowers on single short stalks, amidst the tiny clusters of cups generally found on a cowslip stalk.

SPECIES II.—*PRIMULA OFFICINALIS*. *Linn. Jacq.*

PLATE MCXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXC. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 444.

P. veris, officinalis, Linn. Spec. Plant, p. 104.

P. veris, var. b, Benth. Handbk. Brit. Fl. ed. ii. p. 302.

P. veris, Hook. Sm. Engl. Bot. No. 5. Bot. Man. Brit. Bot. ed. v. p. 277. Hook. & Arn. Brit. Fl. ed. viii. p. 345.

Leaves ovate-oval or ovate-obovate, abruptly contracted at the base into winged petioles, rounded at the apex or subobtusely, irregularly crenate-denticulate, rugose. Umbel raised on a scape; pedicels usually shorter than the calyx, more or less drooping. Calyx 5-sided-

prismatic; teeth about one-third of the length of the tube, triangular-ovate, subobtus. Corolla with the limb much narrower across than the length of the tube, saucers shaped; segments quadrate, concave; throat slightly contracted, with 5 folds. Capsule oval-ovoid, much shorter than the calyx-tube. Pubescence of the scape, pedicels, bracts, and calyx of close short rather stiff jointed and often gland-tipped hairs.

On banks, meadows, pastures, and downs. Rather common, especially in sandy and chalky soils. Generally distributed in England; less frequent in Scotland, especially in the west, but reaching north to Aberdeenshire, and occurring even in Caithness and Sutherland. Mr. H. C. Watson has a specimen labelled from Orkney, but I never met with it there nor heard of its occurrence, and cannot help suspecting that it is not native there. Generally distributed in Ireland.

England, Scotland, Ireland. Perennial. Spring, early Summer.

Rootstock resembling that of the primrose. Leaves generally smaller and very different in shape, being suddenly contracted immediately below the broadest part. Scapes 4 inches to 1 foot high. Flowers numerous, usually all more or less hanging to one side. Calyx $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Limb of the corolla $\frac{1}{2}$ to $\frac{3}{4}$ inch across, bright yellow; segments concave, quadrate-orbicular, notched or obcordate, each with an orange-red mark at the base, and a fold like that observable in the primrose, with a bilobed boss between the folds. Fruit pedicels erect. Plant more thickly pubescent than in *P. vulgaris*, and with the hairs shorter and stiffer. In *P. vulgaris* and *P. officinalis* some individuals have the stamens apparent at the throat, while in others the style is elongate and the stigma protruding. These two forms Mr. Darwin finds to be very imperfectly fertile, unless the pollen of the one form be conveyed to the stigma of the other.

Cowslip.

French, *Primvère du printemps*. German, *Gebräuchlicher Himmelschlüssel*.

This pretty flower is known in some country districts as the Paigle. Its flowers contain a large quantity of honey, and possess slight narcotic qualities; properties that have given rise to their use in making the fermented liquor called Cowslip wine. It is quite an occupation during spring time amongst the rural population in the neighbourhood of Worcester, to gather the flowers of the Cowslip, and sell them to the great British wine-makers of that city. For this purpose the flowers are picked when they are first open, and fermented with sugar and water. When well prepared it is not unpalatable, resembling somewhat some of the sweet wines of the south of France. The sedative qualities of the plant are sufficient to have procured for it the reputation of an anodyne; and we find Pope writing—

“For want of rest,
Lettuce and Cowslip; probatum est.”

Montgomery also alludes to the process of wine-making from the flowers—

“ Whose simple sweets with curious skill
The frugal cottago dames distil,
Nor envy Franco the vine.
While many a festal cup they fill
With Britain's homely wine.”

The root of the Cowslip is also astringent and diuretic, and was at one time used medicinally. It has a scent resembling anise, and is valued as a perfume in some parts of Europe. The leaves are wholesome, and may be eaten as a salad or a potherb.

SPECIES III.—**PRIMULA ELATIOR.** *Linn.* (?) *Jacq.*

PLATE MCXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXC. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 63.

P. veris, β *elatior*, *Linn.* Spec. Plant, p. 204.

Leaves ovate-oval or oval-obovate, abruptly or rather abruptly contracted at the base into winged petioles, rounded at the apex or sub-obtuse, irregularly crose-denticulate, rugose. Umbel raised on a scape; pedicels about equal to the calyx, more or less drooping. Calyx 5-sided-prismatic; teeth nearly half the length of the tube, broadly oblong-lanceolate, acuminate, acute. Corolla with the limb narrower across than the length of the tube, widely funnelshaped; segments obovate-quadrate, flat; throat not contracted, without any folds. Capsule oblong-ovoid, longer than the tube of the calyx. Pubescence of the scape, pedicels, and calyx of rather long shaggy jointed hairs.

In woods and meadows on clay soil. Local. Plentiful in some parts of Essex, Suffolk, and Cambridge.

England. Perennial. Spring, early Summer.

P. elatior differs from *P. officinalis* in the leaves being generally less contracted at the base, though in some specimens they are quite as much so, in the flowers being less drooping, the calyx-teeth longer and much acuminate towards the apex, which is acute. The corolla has the limb usually larger than in the cowslip, and widely funnel-shaped, not saucers shaped, and of a pale buff-yellow, without any contraction at the throat, being quite destitute of the bosses which are present in the primrose and cowslip; the segments of the limb are also narrower. The capsule is much longer in proportion to the calyx. The pubescence is much longer and more shaggy.

Jaquin's Oxlip.

French, *Primevère inodore.* German, *hoher Himmelschlüssel.*

HYBRID.—*PRIMULA OFFICINALI-VULGARIS*.

PLATES MCXXXII. MCXXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCIII. Fig. 1, and MCH. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 443.

P. elatior, Auct. Angl. ante 1842.

P. brevistyla, *D.C.* Fl. de Fr. Vol. V. p. 383. *Reich. fil.* l. c. p. 35.

P. variabilis, "Goupil." *Gren. & Godr.* Fl. de Fr. Vol. II. p. 448.

P. intricata, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 449.

P. Thomasinii, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 449. *Reich. fil.* l. c. p. 35.

P. vulgaris, β . *caulescens*. *Bab. Man. Brit. Bot. ed. v.* p. 267. *Hook. & Arn. Brit. Fl. ed. viii.* p. 345.

P. vulgaris, β . *variabilis*. *Bab. Man. Brit. Bot. ed. vi.* p. 277.

Intermediate between *P. vulgaris* and *P. officinalis*, and including a number of forms which at each extremity of the series graduate into the parent plants. The commonest form, Plate MCXXXII. (which represents the hybrid most nearly half-way between the two parents), differs from the *P. vulgaris* in having the umbel raised on a scape, the pedicels shorter, the calyx-teeth shorter, the corolla limb smaller, more concave and deeper in colour, and with the segments narrower; the pubescence is shorter. From *P. officinalis* it differs in the leaves being narrower, not suddenly contracted at the base, the flowers are larger, the limb not cupshaped, paler in colour, and with the segments flatter; the pubescence is longer and more shaggy.

Rather rare, but generally occurring whenever *P. vulgaris* and *P. officinalis* grow together, but never found in districts inhabited by only one of the parents.

England, Scotland, Ireland. Perennial. Spring.

Previous to 1842 this hybrid was confounded by British botanists with *P. elatior*, Jacq., from which it differs in its larger flowers on much longer pedicels, triangular calyx-teeth, and in the limb of the corolla being brighter coloured, more spreading, the segments much broader and rounder, and the throat somewhat contracted with 5 bilobed bosses, as in the primrose and cowslip.

Another form, Plate MCXXXIII., presents a much closer approach to *P. officinalis*, having the calyx-teeth short and deltoid, the leaves more contracted towards the base, and the pubescence shorter and denser. Other forms occur which differ from the primrose only in the flowers being raised on a scape, the corolla smaller, and with the limb less spreading, and the segments narrower and more obovate than in *P. vulgaris*.

The cases in which the oxlip is said to have been raised from the seeds of the cowslip or primrose cannot be held to be conclusive

proof that these three are all forms of one species, as there is no ground for supposing that precautions were taken to prevent the pollen of the primrose being conveyed to it by insects; and Mr. Darwin has shown that a single plant of either the cowslip or primrose is nearly sterile unless it is fertilised by the pollen from another individual. It is doubtless from this cause that the oxlip, when cultivated in a garden, as was done by Mr. Hewett C. Watson, yields seeds which produce all forms from the primrose to the cowslip-oxlip: indeed, it is probably only accidental that the cowslip itself was not raised by him from the seeds of the oxlip. Interesting matter on this subject will be found in the first series of the *Ptychologist*, vol. ii. pp. 217, 852, in which Mr. Watson details the results of his experiments. See also Mr. Darwin's paper, in the *Journal of the Proceedings of the Linnean Society, Botany*, vol. vi. p. 77.

Common Oxlip.

Great discussions have arisen amongst botanists as to whether the primrose and the cowslip be really distinct, and a long-standing confusion seems to have existed with regard to the "Oxlip." This plant is frequent in the cowslip and primrose districts, growing with the former in the open fields, though always as a solitary individual. It is a great favourite in cottage gardens, and in many respects resembles both the cowslip and the primrose. There appears to be good evidence that the Oxlip is a male or hybrid between the cowslip and primrose, the result of bees and other insects conveying the pollen from one kind of flower to the pistil of the other; as gardeners do when they hybridise plants artificially. Moreover, on the Continent, where the cowslip and primrose are said to be rarely seen together, this "common Oxlip" appears to be unknown. There the primrose is rather a southern plant, extending from France to the confines of Asia, while the cowslip is more of a northern one, extending as far as Finland. Both primrose and cowslip occur, it is true, near together beyond the Alps, but the former is always as a plant of warm valleys, the latter as one of mountains, and too far apart from one another to hybridise. Their intermixture in England is a lively type of the twofold nature of our climate, and it is not surprising that they should issue in a form partaking of the characters of both species. The garden flowers belonging to this family of primroses are very numerous and attractive, and include the numberless varieties of *Polyanthus*, *Auriculas*, and *Cyclamens*. The exquisite velvety surface of the leaves of the *Auriculas*, and the deep royal purple or crimson colour of the flowers, are peculiarly attractive and beautiful.

"*Auriculas enrich'd*

With shining meal o'er all their velvet leaves."

SECTION II.—*ALEURITA.* *Duby* in part.

Calyx without angles, rather shorter than the tube of the corolla. Bracts of the involucre saccate at the base. Leaves not evergreen, nearly smooth, mealy beneath, with revolute margins when young. Plant in winter reduced to a bulb-like bud.

SPECIES IV.—**PRIMULA FARINOSA.**

PLATE MCXXXIV.

*Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXCH. Figs. 1, 2, and 3.**Billot, Fl. Gall. et Germ. Exsicc. No. 623.*

Leaves oblanceolate or obovate, insensibly attenuated into winged petioles, obtuse or subobtuse, crose-denticulate, nearly smooth above, more or less thickly covered with yellowish-white meal beneath, especially when young. Umbel raised on a scape (very rarely sessile), pedicels unequal, some longer and others shorter than the calyx (except in the scapeless forms), erect; bracts of the involucre saccate at the base. Calyx oblong campanulate; segments two-thirds of the length of the tube, oblong, slightly attenuated towards the apex, subobtuse. Tube of the corolla very little longer than the calyx-teeth; limb wider across than the length of the tube, rotate, spreading; segments wedgeshaped-obovate, deeply obovate, not contiguous, flat. Capsule oblong-cylindrical, nearly twice as long as the calyx. Flowers dimorphous.

In bogs and damp pastures. Rare or local. In England it occurs in Lancashire, north Yorkshire, Durham, Northumberland, Westmoreland, and Cumberland. In Scotland it is known to grow only at Bridgehouse, near West Linton, on the south side of the Pentland Hills, about eighteen miles from Edinburgh.

England, Scotland. Perennial. Summer.

Leaves in a rosette, 1 to 4 inches long, the outer ones broader and blunter. Scape 3 to 15 inches high, rarely absent. Flowers about $\frac{1}{2}$ to $\frac{5}{8}$ inch across, the limb flat, lilac-purple, with a yellow eye surrounded by a white line, the throat slightly contracted by bosses, the tube not above one-fourth longer than the calyx-teeth. Capsule $\frac{3}{8}$ inch long, reddish at the apex. Plant glabrous, with the underside of the leaves, upper part of the scape, bracts, pedicels, and calyx sprinkled with yellowish-white meal; the meal easily rubbed off, and soon entirely disappearing from the upper surface of the leaves. Calyx segments generally with a few dark glandular specks.

Bird's eye Primrose.

French, *Primevère farineuse*. German, *mehliger Himmelschlüssel*.

SPECIES V.—**PRIMULA SCOTICA.** *Hook.*

PLATE MCXXXV.

P. farinosa, var. *Duby* in *D.C. Prod. Vol. VIII. p. 44.* *Benth. Handbk. Brit. Bot. ed. ii. p. 302.*

Leaves oval or oblong-oval, attenuated towards the base into winged

petioles, obtuse or subobtusely, crenate-denticulate or repand-denticulate, nearly smooth above, more or less thickly covered with yellowish white meal beneath, especially when young. Umbel raised on a scape (very rarely sessile); pedicels slightly unequal, most of them about equal to the calyx (except in the scapeless forms), erect; bracts of the involucre slightly gibbous at the base. Calyx oblong-ovoid; segments half the length of the tube, oblong, abruptly acuminate towards the apex, obtuse. Tube of the corolla half as long again as the calyx-teeth; limb narrower across than the length of the tube, rotate, spreading; segments deltoid-obovate, deeply obcordate, contiguous, flat. Capsule oblong-ovoid, scarcely exceeding the calyx. Flowers not dimorphous.

In damp pastures. Rare and local. Confined to the counties of Sutherland and Caithness, and the Orkney Isles.

Scotland. Perennial. Early Summer, and again in late Summer, and sometimes a third time in Autumn.

Very similar to *P. farinosa*, from which, however, it is perfectly distinct. The leaves have the broadest part nearer the middle; the scape is rarely more than 4 or 5 inches high even in fruit; the bracts of the involucre are much less saccate at the base; the calyx is much more swollen; the corolla tube longer, and the limb narrower, deeper purple, with the segments broader; and the capsule is very much shorter, not above one-fourth longer than the calyx, and often not so much. The flowers are apparently never dimorphous, for though the point of insertion of the stamens varies, the height of the stigma varies with them, and a single plant seeds freely; the seedlings show no tendency to approach *P. farinosa*.

In the form with sessile umbels, the pedicels are much longer than the calyx.

Scottish Bird's eye Primrose.

GENUS III.—CYCLAMEN. *Tournef.*

Calyx deeply 5-cleft, free from the ovary. Corolla deciduous, with a short globular tube, and a limb of 5 reflexed slightly twisted segments. Stamens 5. Capsule globular or globular-turbinate, slightly fleshy, opening at the apex by 5 valves, which are generally split, and at length revolute. Seeds several, amphitropous.

Herbs with globular depressed root-stocks, and stalked radical leaves with a roundish or ovate lamina, cordate at the base, generally angulated, and often marked with pale green or white. Flowers drooping, solitary at the extremity of scapes, which in most of the species roll

up spirally after flowering. Corolla purplish, rose colour, or pale crimson, lilac or white, generally with deep crimson spots at the base of the lobes.

The name of this genus of plants is derived from the Greek word κύκλος, a circle, from the roundness of its leaves and roots.

SPECIES I.—**CYCLAMEN HEDERIFOLUM.** Willd.

PLATES MCXXXVI. MCXXXVII. MCXXXVIII.

Reich. Ic. Fl. Germ et Helv. Vol. XVII. Tab. MLXXXVIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2312.

C. Europæum, *Sm.* Engl. Bot. No. 548. *Benth.* Handbk. Brit. Bot. ed. ii. p. 303
Non *Jacq.*

C. Neapolitanum, Ten, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 460.

Rootstock depressed-spheroidal, convex beneath, flattish above, 1-headed, or in very old plants with 2 or more heads, smooth, emitting roots over most of its surface.* Leaves appearing in autumn after the flowers, ovate or broadly ovate (rarely triangular-lanceolate), cordate, subobtusely or acute, angulated with 5 to 9 more or less projecting points, finely and closely repand-crenate or denticulate-crenate, slightly shining above, with a whitish belt within the margins. Flowers in autumn before the leaves are fully expanded; throat of the corolla pentagonal; segments oblong-obovate, with an open loop at each side where they bend back. Peduncles spirally coiled in fruit.

Var. α , *genuinum*.

PLATES MCXXXVI. MCXXXVII.

P. hederæfolium, *Reich.* Fl. Excurs. p. 407.

Flowers pink, with a red base. Segments of the corolla oblong-lanceolate.

Var. β , *ficariifolium*.

PLATE MCXXXVIII.

C. ficariæfolium, *Reich.* Fl. Excurs. p. 407.

Flowers white. Segments of the corolla narrowly oblong.

In open woods and on banks. Very rare. Var. α near Sandhurst, on the borders of Kent and Sussex, near Hastings, Sussex, where one

* I am indebted to Mr. Atkins, of Painswick, for pointing out to me the characters of the species of *Cyclamen*, which may be drawn from the comparative smoothness or roughness of the rootstock, and the presence or absence of root fibres all over its surface.

root was found by Mr. Wilson Saunders. Var. β formerly grew at Bramfield, Suffolk, but I believe the bank has been destroyed, and the plant is not now to be found there. It (probably var. α) has been reported from Pembroke, where it may have been planted, and from Notts, in which county it is said to occur plentifully, but I have seen no specimens, and looking at the geographical distribution of the plant there is little probability that it is native.

[England.] Perennial. Autumn.

Rootstock somewhat turnip-shaped, but much broader across than deep, brown, flowering when about 1 inch across, and increasing in succeeding years to a diameter of 3 or even 4 inches. Leaves on long petioles, incurved-reclinate when young; the lamina $1\frac{1}{2}$ to 3 inches long, varying considerably in breadth and greatly in the prominence and sharpness of the angles, dark green, prettily variegated with light green, which forms scalloped concentric bands, underside concolorous, green or more or less tinged with purple. Peduncles erect or ascending, 4 to 9 inches long, with the flowers recurved-reclinate when young. Calyx deeply 5-cleft, the lobes ovate, lanceolate, subobtusely, as long as the tube of the corolla. Corolla tube globular; limb divided to the base into 5 sharply reflexed segments, about 1 inch long. In var. α the segments are broader towards the apex, and have within the tube a crimson-rose spot, which divides into two lobes on the reflexed part of the segment. In var. β the segments are much narrower, nearly the same width throughout, and pure white; in both cases they are slightly twisted. The fruiting peduncles are closely rolled up, the fruit is about the size of a small cherry, dull olive or reddish, speckled with short maroon-coloured streaks, the pericarp slightly fleshy, at length splitting at the apex into an inconstant number of teeth, which roll slightly back to allow the seeds to escape. Seeds about $\frac{1}{8}$ inch in diameter, plano- or concavo-convex, roughened all over with minute points, dim reddish-brown, somewhat viscid when fresh. Plant glabrous, with the scapes and calyx segments puberulent glandular.

Ivy-leaved Cyclamen.

French, *Cyclamen a feuilles de lierre.*

This plant is known by the common name of Sow Bread; the root is purgative and acid, and had an ancient reputation in medicine. In Gerarde's time it was regarded as a dangerous plant to mothers, and he tells us that so great did he consider the danger and inconvenience of touching it, that he had "about the place where it groweth in my garden fastened stickes in the ground, and some other stickes I have fastened also crosse waies over them, lest any woman by lamentable experiment find my words to be true, by their stepping over the same."

GENUS IV.—**TRIENTALIS**. *Linn.*

Calyx 5- to 7-partite, free from the ovary. Corolla deciduous, rotate, slightly concave, without any tube, 5- to 7-partite. Stamens 5 to 7. Capsule globular, slightly fleshy, opening at the apex by 5 valves, which are at length deciduous. Seeds few, amphitropous.

Herbs with slender rootstocks and erect stems. Lower leaves alternate, few, the upper ones larger and arranged in a terminal rosette. Peduncles terminal, 1-flowered; flowers erect, white.

The origin of the name of this genus of plants seems to be very doubtful. It has undoubtedly something to do with the number three, but all writers are so indefinite as to its origin that we do not venture to fix its derivation.

SPECIES I.—**TRIENTALIS EUROPÆA**. *Linn.*

PLATE MCXXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 439.

Leaves elliptical-oblanccolate or elliptical-obovate, nearly entire. Calyx segments linear-strapshaped, acute.

In fir woods, and on heaths, in hilly districts. Rather rare. In England confined to the northern counties, from York and north Lancashire. Generally distributed in Scotland, though apparently absent from the south-western counties, and also from Caithness, Sutherland, and Orkney, though it reappears in Shetland.

England, Scotland. Perennial. Summer.

Rootstock very slender, creeping, white, with an enlargement at the point from which the flowering stem is sent up; the latter wiry, 3 to 9 inches high, leafless or with 1 or 2 minute leaves towards the base, terminating in an irregular rosette of spreading leaves. Leaves 1 to 3 inches long, varying much in breadth, but usually attenuated more towards the base than the apex; they are slightly convex above, smooth, glabrous, and shining, often tinged with purplish red late in the year, the lower ones generally obtuse, and those of the rosette acute. Peduncles filiform, produced from the axils of the leaves, rarely more than 2 or 3 on each stem. Flowers erect. Calyx divided nearly to the base into 6 or 7 (rarely 8 or 9) slender spreading segments. Corolla saucers shaped-rotate, with as many segments as there are divisions in the calyx, pure white, about $\frac{3}{4}$ inch across. Capsule about the size of a sweet pea seed, the valves soon falling off, and having the seeds attached to the central placenta. Seeds minute, irregularly hexagonal, depressed, greyish white, thickly and deeply punctate.

Duckweed Winter-green.

French, *Trientule d'Europe*. German, *Europäischer Liebenstern*.

GENUS V.—**LYSIMACHIA.** *Linn.*

Calyx 5-partite, free from the ovary. Corolla deciduous, rotate, or saucers-shaped-rotate or bell-shaped; tube very short or scarcely any; limb concave or nearly flat, deeply 5-partite. Stamens 5, sometimes with 5 sterile ones between them; the fertile ones, as in the rest of the order, opposite the petals. Capsule subglobular, opening at the apex by 5 valves, which are often 2- or 3-cleft, or by 2 valves. Seeds numerous, amphitropous.

Herbs of various habit. Leaves entire, opposite, or whorled. Flowers yellow, more rarely rosy-white or purple.

The name of this genus of plants is said by one writer to be derived from the Greek words *λύω*, I loose, I end, and *μάχη*, the strife; while Dr. Mayne tells us it was named after Lysimachus, its discoverer, according to Pliny, he being one of Alexander's generals. It is also stated that a King of Sicily of the same name first discovered its virtues, which appear to consist in the power of taming wild beasts.

SUB-GENUS I.—**NAUMBURGIA.** *Mönch.*

Segments of the corolla with a minute tooth between them. Seeds smooth, scarcely margined. Flowers yellow, in dense axillary racemes; stamens subexserted.

SPECIES I.—**LYSIMACHIA THYRSIFLORA.** *Linn.*

PLATE MCXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXV. Fig. 2.

Willd. Fl. Gall. et Germ. Exsicc. No. 1752.

Naumburgia guttata, *Mönch*, Meth. Suppl. p. 23.

N. thyrsoflora, *Duby*, in *D.C.* Prod. Vol. VIII. p. 60.

Stem erect, stiff. Leaves opposite, rarely verticillate, sessile, semi-amplexicaul, oblong-strap-shaped or oblong-lanceolate, densely sprinkled with black dots. Flowers in opposite stalked racemes from the axils of a few of the pairs of leaves near the middle of the stem. Calyx segments strap-shaped, subacute. Corolla bell-shaped, with 5 or 6 strap-shaped subobtusely suberect segments, with a minute tooth in the sinus between them, dotted with black points. Stamens 5 or 6, rather longer than the corolla, slightly combined at the base into a very short ring.

In wet marshes, by the sides of ditches or canals, and in shallow water. Rare. In England it occurs in Wiltshire (but probably introduced), in Nottinghamshire, Yorkshire, and possibly in Anglesea,

Chester, and Cumberland. In Scotland in the counties of Lanark, Stirling, Forfar, and Dumbarton.

England, Scotland. Perennial. Summer.

Rootstock extensively creeping, emitting long stolons. Stem stout, 1 to 2 feet high, when growing in water emitting roots at the lower nodes. Lower leaves reduced to ovate scales, becoming larger until they pass into ordinary leaves. Leaves largest about the middle of the stem, 2 to 4 inches long, opposite, rarely 3 or 4 in a whorl, tapering towards the apex, much longer than the upper nodes. Racemes produced from the axils of 2 or 3 of the pairs of leaves about or a little below the middle of the stem, shortly above where the leaves lose their scale-like appearance. Peduncles erect or erect-ascending, rather shorter than the leaves, being (including the racemes) from $1\frac{1}{2}$ to 3 inches long, the raceme itself $\frac{1}{2}$ to $1\frac{1}{4}$ inch long, cylindrical-oblong, dense, many-flowered. Bracts strapshaped, punctate, the lower ones usually shorter than the pedicels. Pedicels slender, longer than the calyx, with a few gland-tipped hairs above. Calyx truncate at the base. Corolla about $\frac{1}{4}$ inch long, bellshaped, nearly twice as long as the calyx, ochreous-yellow, spotted with purplish black. Style and anthers usually exceeding the petals. Capsule ovoid, spotted with black, half as long as the calyx. Seeds few, angulated. Plant green, glabrous, the leaves glaucous beneath, and with a few woolly hairs upon the midrib, and also on a few of the principal veins, thickly punctate with minute reddish-black dots.

Tufted Loosestrife.

French, *Lysimaque à bouquets*. German, *straussblüthiger Friedlos*.

SUB-GENUS II.—LYSIMASTRUM. *Duby.*

Segments of the corolla without any tooth between them. Seeds smooth, more or less margined. Flowers yellow, on simple or branched axillary peduncles or in a terminal panicle. Stamens included.

SPECIES II.—LYSIMACHIA VULGARIS. *Linn.*

PLATE MCXLI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXVI. Fig. 2.

Willd. Fl. Gall. et Germ. Exsicc. No. 1928.

Stem erect, stiff. Leaves verticillate or opposite, sessile or subsessile, not amplexicaul, ovate or lanceolate, remotely punctate, sprinkled with black dots. Flowers in a short terminal panicle, nearly leafless at the apex. Peduncles axillary, mostly branched. Calyx

segments lanceolate, acuminate, margined with dull red, ciliated. Corolla widely bell-shaped, with 5 oval subobtusely ascending segments, without a tooth in the sinus between them, dotted with yellow glands on the inside only, not ciliated with gland-tipped hairs. Stamens 5, shorter than the corolla, combined at the base into a tube for a third their length. Plant pubescent with jointed glandular hairs or nearly glabrous.

In damp places and by the sides of ditches, rivers, &c. Rather common, and generally distributed in England. Rare in Scotland, especially on the east side, reaching north to Mull, in Argyllshire, and Aberdeen. Local in Ireland, but generally distributed.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Rootstock creeping, emitting numerous white stolons. Stem rather stout, 18 inches to 4 feet high, simple or more or less branched. Leaves generally in whorls of 3, or sometimes 4, or in weak plants opposite, variable in the length of the petiole, which is sometimes scarcely discernible, at other times as much as $\frac{1}{4}$ inch in length; lamina 2 to 5 inches long, very variable in breadth, usually acuminate towards the apex, commonly longer than the internodes, the uppermost ones minute. Peduncles at the top of the stem simple, those in the axils of the upper leaves corymbosely branched, rarely simple, very variable in length and in the number of flowers they bear, forming by their union a short pyramidal panicle. Bracts strap-shaped, usually much shorter than the pedicels. Calyx segments bordered with purplish red, and with a very narrow pellucid margin, which is ciliated with gland-tipped hairs. Corolla $\frac{1}{2}$ inch long, between bell-shaped and funnel-shaped, bright yellow, thickly sprinkled with glands inside, glabrous without. Filaments often red, concealing the germen in the tube formed by their combined bases, which is dotted over with glands similar to those in the interior of the corolla. Capsule often abortive, when perfect globular, longer than the calyx, opening by 5 valves. Seeds minute, trigonous, roughened with minute points, fawn-coloured. Stem generally pubescent, especially above, the pedicels almost always clothed with short jointed glandular hairs, a few of which are generally present on the back of the sepals; leaves bright green and subglabrous above, glaucous and more or less thickly pubescent with short hairs beneath, unequally sprinkled with purplish black glandular dots.

Common Loosestrife.

French, *Lysimaque commune*. German, *gemeiner Friedlos*.

The reputation of this plant for taming ferocious animals may possibly be traced to its supposed sedative properties. The Romans believed that the flowers put under the yokes of oxen kept them from quarrelling, and it is probable that the plant, by keeping

off flies and other stinging insects, may have relieved them from a great source of irritation. In Collin's "Faithful Shepherdess" we find:—

"Yellow *Lysimachus* to give sweet rest
To the faint Shepherd, killing where it comes
All busy gnats and every fly that hums."

Gerarde tells us that "the smoke of the burned herbe driveth away serpents, and killeth flies and gnats in a house, which Pliny speaketh of in his 23rd book. Snakes, saith he, craule away at the smell of Loosetrife. The same author affirmeth, in his 26th book, that it dieth haire yellow, which is not very unlike to be done by reason the floures are yellow." Surely if this were known the cultivation of the Loosetrife would be a profitable undertaking at this present time when there is a fashion in yellow hair.

SPECIES III.—*LYSIMACHIA PUNCTATA*. *Lin.*

PLATE MCXLII.

L. vulgaris, var. *punctata*, *Benth.* Handbook Brit. Fl. ed. ii. p. 304.

Stem erect, stiff. Leaves verticillate or rarely opposite, subsessile or shortly stalked, ovate or lanceolate, remotely punctate. Flowers in a rather long terminal raceme. Peduncles axillary, whorled, 1-flowered, rarely those of the lowest whorl corymbosely branched. Calyx segments strapshaped-lanceolate or narrowly lanceolate, acuminate, concolorous, ciliated. Corolla saucershaped, with 5 oval subobtusely or subacute ascending-spreading segments, without a tooth in the sinus between each, dotted with yellow glands on both sides, ciliated with short gland-tipped hairs. Stamens 5, shorter than the corolla, combined at the base into a tube for nearly half their length. Plant pubescent with jointed glandular hairs.

Var. *α*, *genuina*.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIV. Fig. 3.

L. punctata, *Jacq. Duby*, in *D.C.* Prod. Vol. VIII. p. 65.

Reich. fil. l.c. p. 29.

Leaves subsessile. Peduncles not much longer than the calyx. Calyx segments strapshaped. Corolla segments acute.

Var. *β*, *verticillata*.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXV. Fig. 1.

P. verticillata, *Bieb. Duby*, in *D.C.* Prod. Vol. VIII. p. 65. *Reich. fil.* l.c. p. 29.

Leaves shortly stalked. Peduncles in fruit 3 or 4 times as long as the calyx. Calyx segments strapshaped-lanceolate. Corolla segments obtuse, considerably larger than those of var. *α*. Plant with the hairs on the stem and petioles much longer and more woolly.

In shady places. Very rare, and not indigenous. "Dulverton, Devon;" Prof. Babington. "South-west of Scotland;" Mr. Bentham. Var. β plentiful by roadsides in Glen Clova, Forfarshire: Dr. G. Lawson.

[England, Scotland.] Perennial. Summer, Autumn.

Plant with the general habit of *L. vulgaris*, but more pubescent; the leaves often more distinctly stalked, commonly 4 in a whorl, broader towards the base, $1\frac{1}{2}$ to 3 inches long, and the uppermost ones not so small as in *L. vulgaris*; the peduncles are almost always simple, often in pairs from the axils of each leaf in the whorl; the sepals are much narrower and much more pubescent; the corolla is more saucers shaped, larger ($\frac{3}{4}$ to 1 inch across), sprinkled with glands on the outside, and ciliated with short gland-tipped hairs; the anthers are combined for a greater portion of their length, the stem especially is much more woolly, and the whole plant is more thickly pubescent than in the ordinary state of *L. vulgaris*. I have seen no British specimens but those from Clova, which quite agree with *L. verticillata* of Bieberstein, which appears to be a very slight variety of *L. punctata*.

Punctate Loosestrife.

French, *Lysimachio ponctuée*. German, *punktirter Friedlos*.

SPECIES IV.—**LYSIMACHIA CILIATA.** *Leon.*

PLATE MCXLIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXVI. Fig. 1.

Stem erect, stiff. Leaves opposite, shortly stalked, ovate or ovate-lanceolate, not punctate. Flowers in an interrupted raceme, terminated by a false corymb; peduncles axillary, whorled, 1-flowered. Calyx segments oblong-strapshaped, abruptly acuminate, and very acute, with 5 oval cuspidate denticulate spreading segments, without a tooth in the sinus between each, thickly dotted with glands on the inside towards the base only, not ciliated with gland-tipped hairs. Corolla rotate, nearly flat. Stamens 10, the alternate ones reduced to triangular lobes without anthers; all united at the base into a very short ring. Plant nearly glabrous, with the margins of the leaves shortly ciliated, and the petioles with long remote cartilaginous cilia.

In shady places. Very rare, and not indigenous. A native of North America. Naturalised near Serbergham in Cumberland; also in woods at Kingcausie, Kincardineshire. This last station is on the site of a

garden once belonging to a lodge, now pulled down, and the *Lysimachia* now marks the spot once occupied by the garden.

[England, Scotland.] Perennial. Summer, Autumn.

Rootstock extensively creeping. Stem slender, 1 to 3 feet high. Leaves spreading, distant, except at the apex of the stem, usually with a pair of small ones in their axils; lamina often subcoardate at the base, acuminate, very acute, 2 to 4 inches long. Peduncles from the axils of a few of the upper pairs of leaves, $\frac{3}{4}$ to 2 inches long, glabrous, curved at the apex: the internodes between the last few pairs of leaves at the apex of the stem remain very short, and the peduncles from the axils of these form a false corymb, apparently terminating the stem. Flowers about 1 inch across, pale yellow. Plant light green, the leaves paler beneath.

Ciliated Loosestriſe.

SPECIES V.—**LYSIMACHIA NUMMULARIA.** *Linn.*

PLATE MCXLIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIV. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 1753.

Stems prostrate throughout, flexible, rooting at the base. Leaves opposite, very shortly stalked, roundish or roundish-ovate or -oval, obtuse, punctate. Flowers solitary or in pairs in the axils of a few of the leaves towards the middle of the stems; peduncles axillary, opposite, 1-flowered or forked from the very base, and each fork 1-flowered, rather shorter than the leaves. Calyx segments ovate, cordate, acute. Corolla saucers shaped, with 5 rhomboidal-oval obtuse repand ascending-spreading segments, without a tooth in the sinus between them, sparingly dotted with yellow glands on both sides, and with a few reddish points, very shortly ciliated with minute glands. Stamens 5; filaments thickly dotted with glands, and united at the base into a very short ring. Plant glabrous.

In damp meadows and pastures, and by the sides of ditches and streams. Rather local. Generally distributed in England. Rare and very doubtfully native in Scotland, where it is reported to occur in the counties of Dumfries, Lanark, Berwick, Roxburgh, and Forfar. In Ireland it is doubtfully native, but the authors of the "*Cybele Hibernica*" consider that it may be indigenous in the eastern and north-eastern counties.

England, [Scotland,] Ireland. Perennial. Summer.

Stems numerous, branched chiefly towards the base, 6 inches to 2 feet

long, rather fragile. Leaves $\frac{1}{2}$ to $1\frac{1}{2}$ inch long, rounded or subcordate at the base, sparingly dotted with reddish glands sunk in the substance of the leaf; petiole about $\frac{1}{4}$ th of the length of the lamina. Peduncles $\frac{1}{4}$ to 1 inch long, generally solitary and opposite, but sometimes, in place of a single one, there are 2 from the axil of one leaf, united together at the very base, recurved in fruit. Flowers somewhat resembling those of *L. punctata*, $\frac{3}{4}$ inch across, bright yellow, with reddish immersed glands, and small yellow superficial glands. Plant green, glabrous, the leaves slightly shining. The fruit I have never seen, as, like many other creeping plants, it appears to produce it very rarely.

Creeping Jenny. Moneywort.

French, *Lysimaque nummulaire*. German, *rundblättriger Friedlos*.

This is a pretty and well-known plant, and well repays the trouble of those who, seeking it in its native haunts, will transplant it on to the garden rockwork or ornamental basket, where its pretty bright yellow flowers and round money-shaped leaves hang over the sides.

SPECIES VI.—**LYSIMACHIA NEMORUM.** *Lin.*

PLATE MCXLV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIV. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1754.

Stems decumbent, flexible, rooting at the base, ascending or erect at the apex. Leaves opposite, very shortly stalked, ovate or oval-ovate, acute, not punctate. Flowers solitary in the axils of a few of the leaves in the upper half of the stem; peduncles axillary, opposite, 1-flowered, a little longer than the leaves. Calyx segments strap-shaped-subulate, very acute. Corolla rotate, with 5 oval obtuse repand or entire spreading segments, without a tooth in the sinus between them, without glands on either side or reddish points, not ciliated. Stamens 5; filaments glabrous, not united at the base. Plant glabrous.

In moist woods and hedgebanks. Common, and generally distributed, but more abundant in the north, though it appears not to reach the Orkney or Shetland Islands.

England, Scotland, Ireland. Perennial. Early Summer to Autumn.

Stem creeping, branched; the shoots of the year ascending, flexuous, 3 inches to 1 foot long, brittle. Leaves $\frac{1}{2}$ to 2 inches long, of which the petiole in the largest leaves is not more than $\frac{1}{4}$ inch. Peduncles very slender, frequently $1\frac{1}{2}$ or 2 inches long, recurved in fruit. Corolla $\frac{1}{2}$ to $\frac{3}{4}$ inch across, rich yellow, resembling in shape that of *Anagallis arvensis*. Filaments much more slender than in any of the preceding

species, and without any glands, and differing further in being free at the base. Capsule much shorter than the sepals, globular, about as large as a hemp seed. Plant green, the leaves slightly shining, a little paler below.

Yellow Pimpernel.

French, *Lysimaque des bois*. German, *Hain-Friedlos*.

GENUS VI.—ANAGALLIS. *Tournef.*

Calyx 5-partite, free from the ovary. Corolla deciduous, rotate, flat or slightly concave, rarely funnelshaped, without any tube, 5-partite, larger than the calyx. Stamens 5. Capsule globular, opening transversely, the upper part falling off like a lid. Seeds numerous, amphitropous.

Herbs or undershrubs with opposite leaves, and brightly coloured flowers on axillary 1-flowered peduncles.

The name of this genus of plants is supposed to be derived from the Greek word *Ἀνάγω*, I extract; because it is believed by some to draw out concealed pricks or stings.

SPECIES I.—ANAGALLIS ARVENSIS. *Linn.*

PLATES MCXLVI. MCXLVII.

Root annual. Stem decumbent, branched, herbaceous, not rooting, quadrangular, obscurely 4-winged. Leaves opposite, or rarely in whorls of 3 or even 4, sessile, ovate or ovate-lanceolate, acute. Flowers opposite (or whorled when the leaves are whorled), axillary, arranged in a lax raceme at the extremity of the stem and branches; peduncles slender, longer than the leaves, erect in flower, recurved in fruit. Calyx segments narrowly-lanceolate, very acute, with a narrow membranous border. Corolla rotate; segments spreading horizontally, rather longer than the calyx, obovate-oblong, obtuse, minutely denticulate towards the apex. Filaments free. Capsule about as long as the calyx segments, spherical. Seeds numerous. Plant glabrous, with minute glandular dots.

Var. α, phœnicia.

PLATE MCXLVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 2882.

A. phœnicia, Lam. Fl. Fr. Vol. II. p. 285.

A. arvensis. Sm. Ens. Bot. ed. i. No. 529.

Flowers pale scarlet with a purple eye, rarely pink or white. Corolla segments commonly ciliated with short gland-tipped hairs.

Scarlet Pimpernel and Blue Pimpernel.

French, *Mouron des champs*. German, *Acker Gauchheil*.

This pretty little plant is commonly known as the "Poor Man's Weather-glass," from its extreme sensitiveness to a change of atmosphere, which causes it to shut up its petals at the approach of rain. In fine weather it remains open from about eight in the morning till four in the afternoon. It is a common weed in the Valley of the Nile; and it has a reputation as a medicine in cases of hydrophobia and mania. Its virtues seem, however, to be very doubtful and very imperfectly understood. The leaves are sufficiently inert to be eaten as a salad in France and Germany, but an extract of them is an active irritant, and has been known to cause the death of dogs, to whom it was given experimentally by Orfila and Grenier. The notion that the Pimpernel foretells the approach of rain is widely spread through the country; and our native poets perpetuate the belief by such lines as the following:—

"Clos'd is the pink-eyed Pimpernel.
"Twill surely rain. I see with sorrow
Our jaunt must be put off to-morrow."

And again—

"The Pimpernel, whose brilliant flow'r
Closes against the approaching show'r,
Warning the swain to sheltering bow'r
From humid air secure."

Var. β , *caerulea*.

PLATE MCXLVII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 440.

A. caerulea, *Sac*. Engl. Bot. ed. i. No. 1823. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 669.

Flowers bright blue. Corolla segments usually not ciliated with gland-tipped hairs. Plant generally more robust and more upright than var. α .

In cultivated fields, in light and chalky soils, and waste places, and by roadsides. Very common, and generally distributed, except in the extreme north of Scotland. Frequent in Ireland. Var. β rather rare in England; very scarce in the north, though it is reported to occur as far north as Perth and the neighbourhood of Glasgow, but I have never met with it in Scotland; very rare in Ireland.

England, Scotland, Ireland. Annual. Summer, Autumn.

Stems diffusely branched, quadrangular, succulent, brittle, 3 inches to 3 feet long, in the shorter state more upright than in the longer. Leaves $\frac{1}{2}$ to $1\frac{1}{4}$ inch long, variable in breadth, the lowest ones indistinctly stalked. Peduncles $\frac{1}{2}$ to 2 inches long. Flowers $\frac{3}{8}$ to $\frac{1}{2}$ inch across, expanding only in fine weather. Filaments hairy. Capsule

about the size of a sweet pea seed. Seeds trigonous-hemispherical, papillose when young, fuscous-brown, dim and shagreened when ripe. Stem and underside of leaves with reddish-brown glandular dots.

Var. β is a puzzling plant, generally appearing perfectly distinct from var. α , and coming up true from seed, but blue-flowered plants do occur with the corolla-segments glandular-ciliate as in var. α ; and it has been reported that from the seed of the flower of one colour the other has been raised. Perhaps the true solution of the difficulty is that suggested by Mr. Borrer, viz., that there are two plants, each of which varies with red or blue flowers: if this could be proved the two should be considered as subspecies.

SPECIES II.—**ANAGALLIS TENELLA.** *Lin.*

PLATE MCXLVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXII. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. 2nd Cent. B.

Root perennial. Stem procumbent, slightly branched, herbaceous, rooting at the nodes, filiform, bluntly quadrangular. Leaves opposite, very shortly stalked, roundish or subrhombic-roundish, subspatulate, obtuse, rarely opposite. Flowers solitary and alternate, when but a single leaf is produced at the nodes from which they spring, —more rarely opposite, when there are a pair of leaves: in either case, usually about the middle of the stem, which then terminates in a barren shoot; peduncles slender, much longer than the leaves, rising vertically, hooked at the apex in fruit. Calyx segments strapshaped-lanceolate, very acute, without a membranous border. Corolla funnelshaped; segments ascending, slightly recurved at the apex, rather more than twice as long as the calyx, oblong-obovate, obtuse, entire. Filaments united at the base. Capsule much shorter than the calyx segments, subspherical. Seeds few. Plant wholly glabrous.

In bogs and wet places. Rather rare, though universally distributed. More abundant on the west side of the island, but extending from Cornwall to Shetland. Frequent throughout Ireland.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Stems very slender, prostrate throughout or rarely ascending at the apex, branched at the base, the branches themselves nearly simple, 2 to 8 inches long. Leaves $\frac{1}{8}$ to $\frac{1}{4}$ inch long, and nearly as broad, abruptly attenuated into the very short petioles, opposite, except at the nodes from which the flowers are produced, where they are most commonly alternate, or at least the one a little above the other; beyond the flower-bearing part the stems commonly extend into long barren shoots, bearing some resemblance to those of *Thymus eu-Serpyllum*. Peduncles 1 to 2 inches long. Flowers nearly $\frac{1}{2}$ inch long, pale rose,

with darker veins. Filaments united below into a short tube, the free portion hairy. Capsule and seeds much smaller than in *A. arvensis*, but in other respects similar.

Bog Pimpernel.

French, *Mouron délicat.* German, *zarter Gauchheil.*

GENUS VII.—CENTUNCULUS. Linn.

Calyx 4- or 5-partite, free from the ovary. Corolla subpersistent, withering; tube short; limb 4- or 5-partite, the segments connivent, shorter than the calyx. Stamens 4 or 5. Capsule globular, opening transversely, the upper part falling off like a lid. Seeds numerous, amphitropous.

Small annual herbs, with the lower leaves opposite, the rest alternate; flowers minute, axillary, subsessile.

We find that Dr. Mayne gives the derivation of the name of this genus of plants from *Cento*, a coarse coverlet made of shreds and lists, from its ragged appearance.

SPECIES I.—CENTUNCULUS MINIMUS. Linn.

PLATE MCXLIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXII. Fig. 4
Billot, Fl. Gall. et Germ. Exsicc. No. 621.

Leaves from which flowers are produced alternate, ovate or oval-acute. Flowers subsessile. Corolla without glands at the base.

In damp places, particularly on heaths where portions of the turf have been removed, and among sand hills in places which have been inundated in winter. Rare, but widely distributed, though apparently not occurring in the north of Scotland. Rare, but widely distributed in Ireland.

England, Scotland, Ireland. Annual. Summer, Autumn.

Stems branched only from the crown of the root, the branches $\frac{1}{2}$ to 2 inches long. Leaves $\frac{1}{10}$ to $\frac{1}{8}$ inch long, a few at the base opposite, oval or elliptical, attenuated into indistinct petioles, the upper ones nearly sessile, the greater number with flowers in their axils, and alternate. Flowers white or pink. Calyx segments lanceolate-subulate. Corolla shorter than the calyx, erect, usually with 4 segments. Capsule globular, apiculate, shorter than the calyx. Seeds very minute, hemispherical, trigonous, dark brown, shagreened. Plant glabrous, often with a reddish tinge.

Bastard Pimpernel.

French, *Centenille naine.* German, *Acker-Kleinling.*

GENUS VIII.—**GLAUX**. *Tournef.*

Calyx bellshaped, coloured, 5-cleft. Corolla none. Stamens 5, hypogynous. Capsule globose, opening at the apex by 5 valves. Seeds few, amphitropous.

A fleshy herb growing on the seashore, with decussate entire leaves, and subsolitary axillary flowers.

The derivation of the name of this genus of plants appears to be from γλαύς, an owl, from the plant having, it is said, the colour of owl's eyes; or from the Latin words *glamus* or *glamius*, sea-green, which latter we think most likely.

SPECIES I.—**GLAUX MARITIMA**. *Linn.*

PLATE MCL.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXVII. Figs. 1, 2, and 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 167.

The only known species.

On sandy shores and sea walls, and in salt marshes. Common, and universally distributed along the coast and margins of tidal rivers, but occurring inland only where the soil is impregnated with salt, as in Worcestershire and Staffordshire.

England, Scotland, Ireland. Perennial. Summer.

Rootstock creeping, with long stolons having scales at intervals, several of which stolons are emitted from a point a considerable distance below the ground. Stem decumbent, rarely erect, commonly branched, with the branches usually simple, 2 to 12 inches long. Leaves oval or oblong, fleshy, $\frac{1}{4}$ to $\frac{3}{4}$ inch long, opposite or, towards the apex, 4 in an irregular whorl, but the whorls are sometimes so much dislocated that the leaves may be said to be alternate. Flowers axillary, nearly erect, sessile. Calyx $\frac{1}{2}$ inch long, campanulate, 5-cleft, pink, with the margins of the segments white and scarious; segments obovate-roundish, obtuse. Capsule the size of a rape seed, globular, cuspidate, slightly succulent, dull pink, marked with short reddish streaks, opening by 5 valves at the apex. Seeds 2 to 8, concavo-convex or plano-convex, roughened, dark red, resembling those of a cyclamen in miniature. Plant pale green, glabrous, bearing a superficial resemblance to *Honkeneya* peplodes.

Black Saltwort.

French, *Glaux maritime*. German, *Meerstrands-Milchkraut*.

This little plant is very pretty while growing, with its rose-coloured tiny flowers, and is associated with some of our pleasantest seaside rambles; and though scarcely attainable without incurring wet feet, it is worth the inconvenience: and those who

are in health must not shrink from searching the salt marshes on the coast, for many very charming botanical treasures find their homes there. It is said that the leaves and stem of the plant make a good pickle after the manner of samphire.

GENUS IX.—SAMOLUS. Tournef.

Calyx with the tube adhering to the lower half of the ovary; the limb free, 5-cleft. Corolla deciduous, inserted on the upper part of the tube of the calyx, funnelshaped-salvershaped; tube very short; limb concave, 5-partite. Perfect stamens 5, alternating with 5 scale-like sterile stamens. Capsule half inferior, ovate-globose, opening at the apex by 5 teeth. Seeds numerous, anatropous.

Herbs with the radical leaves stalked; the stem leaves alternate, sessile, or shortly stalked. Flowers small, in racemes or corymbs.

The derivation of the name of this genus of plants is somewhat obscure. It is said by some writers to be a diminutive of *Samos*, a Grecian island, in which it abounds.

SPECIES I.—SAMOLUS VALERANDI. Linn.

PLATE MCLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXXXIII. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 625.

Stem erect, simple or paniculately branched, leafy. Leaves obovate or oblanceolate, obtuse, the lower ones attenuated into a petiole, the uppermost ones subacute. Racemes many-flowered, elongating in fruit. Capsule subglobose, shorter than the calyx.

In wet places, and by the sides of ditches, especially near the sea. Generally distributed, except in the north of Scotland.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

Stem stiff erect, 3 to 30 inches high, nearly simple in small specimens, paniculately branched, with the branches ascending, in large ones. Radical leaves in a rosette, 1 to 5 inches long; stem leaves alternate, decreasing in size the higher they are placed on the stem, and becoming more shortly stalked till the upper ones are quite sessile. Flowers at first corymbose, with the corymb lengthening into a raceme after flowering. Pedicles without bracts at the base, erect, ascending, slightly incurved after flowering, much longer than the calyx, each with a small bracteole a little below the calyx. Flowers $\frac{1}{2}$ inch across. Calyx tube ovoid in flower, hemispherical in fruit; segments deltoid. Corolla funnelshaped, not much exceeding the calyx, white, deeply divided into 5 obovate truncate or emarginate segments, with a scale-like process between each pointing inwards. Filaments short, broad at the base. Style short. Seeds very nume-

rous, dark brown, roughened. Plant bright green, glabrous, and with a somewhat greasy lustre.

Brook-weed.

EXCLUDED SPECIES.

CYCLAMEN EUROPÆUM. *Linn.*

This has been reported as occurring in Britain, but it seems doubtful if *C. hederifolium* has not been mistaken for it.

LYSIMACHIA QUADRIFOLIUM. *Linn.*

I have this North American species under the name of *L. punctata*, collected by the late Mr. J. Storey in Heaton Dene, near Newcastle, Northumberland, with the remark that it is abundant but not indigenous.

ORDER LVII.—PLUMBAGINACEÆ.

Perennial herbs or shrubs with the leaves all radical, or more rarely alternate, without stipules. Flowers perfect, regular, commonly in heads or spikes, in the latter case with the spikes often collected into panicles. Calyx free from the ovary, persistent, funnelshaped, with the limb commonly scarious, erose or 5 or 10-lobed. Corolla marcescent or deciduous, hypogynous, salvershaped or funnelshaped, with a 5-lobed limb, or of 5 petals with long claws, which are distinct or adhere only at the base. Stamens 5, generally opposite the lobes of the corolla and hypogynous monopetalous genera; in the polypetalous genera inserted on the base of the petals, or between them. Ovary free, 1-celled; styles 5, rarely 3 or 4, terminal, distinct, or more rarely united towards the base; ovule solitary, suspended from a funiculus, which rises from the base of the ovary. Fruit enclosed in the calyx, membranous, utricular, bursting irregularly, or opening by 5 valves at the apex. Seed solitary; albumen rather scanty, mealy.

GENUS I.—ARMERIA. *Willd.*

Flowers in solitary terminal involucrate heads, with an inverted cylindrical sheath enclosing the upper part of the scape. Corolla funnelshaped, of 5 petals adhering only at the base. Styles hairy below.

Herbs with the leaves all radical, linear, lorate or oblanceolate. Scapes unbranched, leafless; flowers pink, purple, rose colour, or white.

The derivation of the name of this plant is so uncertain and unsatisfactory that we can adopt none that are given.

SPECIES I.—**ARMERIA VULGARIS.** *Reich.*

PLATES MCLII. MCLIII.

Leaves linear, or linear-lorate or oblanceolate-linear, acute or obtuse, 1-nerved, rarely 3-nerved. Exterior bracts of the involucre mucronate or acute, the interior ones scarious, obtuse, with the nerve vanishing before the apex, or slightly mucronate from its being excurrent. Calyx obliquely truncate at the base; segments shortly, cuspidate.

Var. *α*, *maritima*.

PLATE MCLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXLVIII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 2521.

A. maritima, *Willd.* Enum. Hort. Berol. Vol. I. p. 333.

Statice maritima. *Sm.* Engl. Bot. ed. i. No. 226.

Leaves narrow, always 1-nerved, channeled above, bluntly keeled beneath, flaccid.

Var. *β*, *planifolia*.

PLATE MCLIII.

A. vulgaris, var. *pubescens*? *Reich. fil.* Vol. XVII. p. 67.

Statice elongata, var. *pubescens*? *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 683.

Leaves broadly linear, sometimes 3-nerved, flat above, with the midrib impressed, slightly convex beneath, firm. Plant paler green than in var. *α*.

On rocks, pastures, and the drier part of salt marshes by the sea. Also on rocks and damp places on mountains. Common and universally distributed. Var. *β*, Scotch Highlands, Mr. H. C. Watson.

England, Scotland, Ireland. Perennial. Spring to Autumn.

Rootstock branched at the apex, with several heads which produce dense rosettes of radical leaves, 1 to 6 inches long. Leaves somewhat fleshy, variable in breadth, punctate above, and sprinkled with pale immersed points on both sides, except on the midrib, glabrous or minutely ciliated. Scapes from the axils of the outer leaves of the rosette, 2 inches to 1 foot high, puberulent or pubescent

in all the British specimens I have seen, with short stiff reflexed hairs, the upper part immediately beneath the head sheathed with an ochrea-like reflexed bract, laciniate at the apex. Outer involucre bracts more or less green on the back, the green part excurrent and forming a projecting point, or not reaching the apex at all, the sides more or less broadly scarious; inner bracts usually wholly scarious, but the second row has sometimes a green patch on the back as well as the outer ones; bracteoles wholly scarious and white, folded down the back and enclosing the flowers. Pedicel commonly about as long as the calyx tube, but sometimes only half that length. Calyx decurrent on one side of the pedicels, with 5 prominent hairy ribs excurrent through the wholly scarious limb; the tube of the calyx glabrous or hairy between the ribs, but this character being inconstant, it is utterly worthless as a means of separating the various forms, as has unfortunately been done by M. Boissier in Vol. XII. of De Candolle's *Prodromus*. Flowers generally about $\frac{3}{8}$ inch long, varying from pale pink to deep rose, and occasionally to white. Fruit rather longer than the calyx tube, marked with 5 radiating ribs at the apex.

The var. β given above is figured and described from a plant cultivated by Mr. Hewett C. Watson, the root of which was brought by him from the Highlands of Scotland. Its characters cannot be well seen in herbarium specimens, so that I am unable to say whether it be at all generally distributed or no. I myself have never met with it on the seashore, and have not been in any of the mountainous districts where it would be likely to occur, since my attention has been directed to it. It has the blunt and non-mucronate bracts of the ordinary seaside form, but in habit it approaches much more closely to *A. elongata* of Hoffman, and except in the stem being hairy, agrees well with specimens labelled *A. elongata* sent from Södertelje by Mr. Cedersträhle: it has the tall stiff stems and short flat leaves of that subspecies. The first leaves are 3-nerved, and widen towards the apex as in the form *A. alpina*, Willd. but the mature leaves do not at all enlarge towards the apex as in that plant, and it is very rarely that there is in them more than a single nerve, though occasionally 2 faint additional lateral nerves may be discerned. It is much to be desired that botanists visiting the Scotch Highlands would investigate the Alpine forms of *Armeria*.

Common Thrift or Sea Pink.

French, *Armérie Gazon d'Olympe*. German, *gemeine Grasnelke*.

This plant is perhaps best known as an edging to cottage gardens, where it is popularly cultivated, and looks very pretty when in full blossom. It is found in pastures on the sea coast, and often gives quite a glowing tinge of colour to them.

We are somewhat surprised on consulting our old friend Gerarde, as to the virtues and medical properties of the thrift, to find that he has none to suggest; but says: "Their use in physicke as yet is not known, neither doth any seeke into the nature thereof, but esteeme them only for their beauty and pleasure."

SPECIES II.—**ARMERIA PLANTAGINEA.** Willd.

PLATE MCLIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLI. Figs. 1 & 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 837.

A. sabulosa, *Jord. Bor.* Fl. du Centre de la Fr. ed. iii. Vol. II. p. 537.

Statice plantaginea, *All. Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 682.

Leaves narrowly oblanceolate, acute, 3- to 5-nerved, rarely 7-nerved. Exterior bracts of the involucre mucronate or often aristate or foliaceous; interior ones scarious, obtuse, usually slightly mucronate from the nerve being excurrent. Calyx obliquely truncate at the base; segments cuspidate-aristate.

In sandy pastures and banks by the sea in Jersey, where it grows in St. Brélade's Bay, and on the Quenvais.

Channel Islands. Perennial. Late Summer, Autumn.

This is a stouter plant in all its parts than *A. vulgaris*, with the leaves much firmer in texture, and in shape resembling those of *Plantago lanceolata*. The leaves and stems are quite glabrous. The ochreate bract at the apex of the scape is usually longer, and has the apex less deeply laciniate. The exterior involucre bracts have commonly longer points than in *A. vulgaris*, often considerably exceeding the flower-head, and sometimes even foliaceous. The calyx has the awns much longer. The pedicel is not half the length of the calyx tube. The branches at the apex of the rootstock are shorter, so that the plant grows in denser tufts, and below the leaves the bases of the decayed leaves remain longer, so as to give the rootstock a scaly appearance.

Plantain-leaved Thrift.

French, *Armérie à feuilles de plantain*. German, *wegerichblättrige Grasnelke*.

HYBRID (?)—**ARMERIA VULGARI-PLANTAGINEA.**(?)

PLATE MCLV.

Intermediate between *A. vulgaris* and *A. plantaginea*. From the former it differs in growing in a denser tuft; in the leaves being firmer, broader, slightly enlarged towards the apex, and tapering to an acute point; in the stems being longer and more rigid; in the ochreate bract being longer; in the involucre bracts being more distinctly cuspidate; in the pedicel being as short as in *A. plantaginea*, and in the segments of the calyx having much longer awns. From *A. plantaginea* it differs in the leaves being less coriaceous, narrower, 1-nerved or

indistinctly 3-nerved, ciliated; in the scapes being densely and shortly pubescent, and in the time of commencing to flower being nearly a month in advance of *A. plantaginea*.

On the slopes of St. Brélade's Bay, growing with its two supposed parents.

Channel Islands. Perennial. Early Summer.

Perhaps a sub-species of *A. plantaginea*, but it is so exactly intermediate between *A. vulgaris* and *A. plantaginea*, that it is more probable that it is of hybrid origin.

GENUS II.—**STATICE**. *Linn. Willd.*

Flowers in spikelets arranged in unilateral spikes, which are combined so as to form panicles or corymbs. Corolla funnelshaped, of 5 petals united only at the base. Styles glabrous below.

Herbs with the leaves often obovate or oblanceolate. Flowers of various colours, in spikelets, which are arranged in spikes; spikelets each enveloped by 3 partially scarious bracteoles.

The derivation of the name of this genus of plants is from the Greek word *ἵστημι*, to make to stand, from its power to arrest fluxes, and to act as an astringent.

SECTION I.—**LIMONIUM**. *Gren. and Godr.*

Leaves pinnately veined. Scapes and their branches not winged. Axes of the spike not produced beyond the flowers. Calyx slightly oblique at the base; the limb not awned.

SPECIES I.—**STATICE LIMONIUM**. *Linn.*

PLATES MCLVI. MCLVII. MCLVIII.

Rootstock thick, somewhat fleshy. Leaves conspicuously stalked, obovate or oblanceolate or strapshaped-oblanceolate petiolate, often aristate, pinnately veined. Scapes corymbosely or paniculately branched in the upper half or two-thirds, destitute (or nearly destitute) of sterile branches. Spikelets 1- to 3-flowered, arranged in 2-ranked unilateral subdistichous spreading or recurved or erect and sometimes incurved spikes. Inner bracteole twice as long as the outer one, and twice or once and a-half as long as the intermediate one. Calyx segments triangular, acute, entire, with a minute tooth in each sinus. Plant glabrous.

SUB-SPECIES I.—*Statice Behen.* *Drejer.*

PLATES MCLVI. MCLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXL. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1052.

S. Limonium, *Sav.* Engl. Bot. No. 102. *Endl.* Mon. Brit. Bot. ed. v. p. 270. *H. & Arn.* Brit. Fl. ed. viii. p. 351. *Koch.* Syn. Fl. Germ. et Helv. ed. ii. p. 684.

S. Limonium Scannica, *Fries*, Mant. i., p. 10, and ii., p. 17.

Leaves obovate or oblanceolate. Scapes branched in the upper half. Spikelets 1- to 2-flowered, arranged in compact or rather compact 2-ranked unilateral spreading or recurved spikes. Innermost bracteole twice as long as the intermediate one.

Var. *α*, *genuina*.

PLATE MCLVI.

S. Limonium, var. *β*, *Behen.* *Boiss.* in *D.C.* Prod. Vol. XII. p. 645.

S. Limonium, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 739.

S. Pseudo-limonium, *Reich.* Fl. Germ. Excurs. p. 191. *Reich.* *fil.* Ic. Fl. Germ. et Helv. Vol. XVII. p. 62.

Panicle compact, subcorymbose, nearly level-topped; branches short, stiff; spikes rather dense, elongate, at length usually recurved.

Var. *β*, *pyramidalis*.

PLATE MCLVII.

S. scrotina, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 740 (non *Reich.*).

S. Limonium, *Reich.* Fl. Germ. Excurs. p. 191.

S. Limonium, var. *α*, *genuina*, *Boiss.* in *D.C.* Prod. Vol. XII. p. 644.

Panicle very lax, pyramidal, the lateral branches widely spreading, flexuous; spikes short, rather lax.

In muddy, salt marshes, by the shores of tidal rivers. Rather common, and generally distributed on the coast of England. On the east reaching north as far as Holy Island, near Berwick on Tweed, on the west extending to the shores of Wigton, Kirkcudbright, and Dumfries. Var. *β* on the coasts of Kent, Sussex, and Dorset.

England, Scotland. Perennial. Late Summer, Autumn.

Rootstock thick, somewhat fleshy, black, branching at the apex, and sometimes creeping for a short distance in the mud, the branches of the rootstock producing rosettes of leaves at the apex. Leaves very variable in size, 2 inches to 1 foot long, including the petiole; the proportion of length to breadth is very variable; the apex is obtuse or subacute, sometimes apiculate, at other times, even on the same plant,

produced into a long slender mucro. Scapes 3 inches to 2 feet high, generally commencing to branch about the middle, destitute of ordinary leaves, but with a few bract-like scales at intervals, and at the base of the branches. Spikes $\frac{1}{2}$ to $1\frac{1}{2}$ inch long. Spikelets all pointing upwards, but inserted alternately on opposite sides of the rachis, each with 3 bracteoles, of which the outer one is broadly herbaceous on the back, pointed and indistinctly keeled, or sometimes rounded on the back, with white scarious margins; the inner or intermediate one nearly wholly scarious and white, and about the same length as the outer; the third or innermost (which is directly above the outer one) is twice as long, and with a large herbaceous portion on the back, but broadly white and scarious on the apex and margins. The calyx is funnel-shaped, with 5 ribs; the limb scarious, white, generally tinged with bluish-purple at the time of flowering; the segments plaited. Corolla $\frac{3}{8}$ inch long; petals oblanceolate, obtuse, bright purplish-blue. Fruit shorter than the calyx limb, the summit marked with 5 projecting radiating lines.

I am unable to distinguish Mediterranean specimens of *S. "serotina,"* *Gren. & Godr.*, from those collected by myself at Northfleet on the banks of the Thames, and others which have been sent me from various parts of the southern coast; but I believe these specimens differ from the ordinary form merely in luxuriance, and that the more luxuriant the plant is, the more lax and pyramidal the panicle becomes: in visiting the same station in different years I have observed that when the salt marsh was drier than usual, the panicle had a tendency to revert to the commoner form. The plant distributed by Reichenbach, and figured as *S. serotina* by the younger Reichenbach in the *Icones Floræ Germanicæ*, is Boissier's *S. Limonium*, var. *macroclada*, which seems to have much better claims to be considered distinct, as a subspecies of *S. Limonium*, but this appears to be quite a southern form, though often confounded with the variety described above.

Great Sea Lavender.

French, *Statice Limonium*. German, *ächter Wiederstoss*.

This is among the very few handsome flowers of the sea coast, and is often gathered from the muddy shore or salt marsh to deck the winter nosegay; for it retains its form and colour for many months, owing to the dry nature of its lovely flowers, which seem made of a delicate membrane. It is of an astringent nature, and may be advantageously employed when medicines of that kind are indicated.

(?) SUB-SPECIES II.—*Statice Bahusiensis.* *Fries.*

PLATE MCLVIII.

Reich, Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXL. Fig. 2.

S. Limonium, Linn. Herb. (!)

S. Limonium, var. Benth. Handbk. Brit. Fl. ed. ii. p. 377.

Leaves oblanceolate or strap-shaped-oblanceolate. Scapes branched in the upper half or two-thirds. Spikelets 1- or 2-flowered, arranged

in 2-ranked subdistichous or more rarely subunilateral erect straight or incurved spikes. Innermost bracteole half as long as the intermediate one.

In muddy salt marshes, growing with *S. Behen*, but rather more rare. On the west coast, extending as far north as St. Mary's Isle, Kirkcudbright; on the east coast it does not reach further than Cotham salt marshes in Yorkshire. In Ireland it appears to be sparingly spread from one end of the island to the other.

England, Scotland, Ireland. Perennial. Autumn.

S. Bahusiensis approaches in some of its forms so closely to *S. Behen* that it ought only to be considered as a subspecies. The ordinary forms, however, are strikingly different. The leaves of *S. Bahusiensis* are generally narrower, more pointed, and the inner ones are seldom destitute of an elongate mucro; the scape is often slightly angular, especially above, but the greatest difference is in the arrangement of its spikelets, which are remote instead of almost contiguous; sometimes they are so distant that the apex of the inner bracteole reaches to the base of the spikelets next above it on the opposite side of the rachis; at other times, however, it is only the apex of the short outermost bracteole which reaches to the base of the next spikelet; the intermediate bracteole is a little longer than in *S. Behen*, and all the three have commonly a broad belt of bright crimson surrounding the herbaceous portion, which is seldom the case in *S. Behen*, and although it occasionally occurs in that plant, I have never seen the tint so bright as it is in *S. Bahusiensis*. The erect or incurved spikes give the plant a very different habit, but this appears to be merely dependent on the spikelets being distant, as whenever the spikelets are close together the spikes show a tendency to spread. The calyx and corolla of the two species are undistinguishable from each other.

Remote-flowered Sea Lavender.

SECTION II.—GLOBULARIASTRUM. *Gren. & Godr.*

Leaves 1-nerved or rib-veined, not pinnately veined. Scapes and branches not winged. Axes of the spike not produced beyond the flowers. Calyx slightly oblique at the base; limb not awned.

SPECIES II.—*STATICE BINERVOSA*. *G. E. Sm.*

PLATES MCLIX. MCLX.

S. auriculæfolia, *Benth.* Handb. Brit. Fl. ed. ii. p. 378.

Rootstock woody. Leaves shortly stalked, oblanceolate or obovate, with an indistinct rib at the base on each side of the midrib, but with no lateral veins emanating from the midrib. Scapes paniculately branched in the upper half or two-thirds, destitute or nearly destitute

of sterile branches. Spikelets 2- to 3-flowered, arranged in 2-ranked unilateral erect or spreading straight or slightly incurved spikes. Innermost bracteole rather more than twice as long as the interminate and outer ones, herbaceous on the back. Calyx segments broadly ovate, rounded, without teeth between them. Plant glabrous, or with the branches of the scape minutely papillose.

Var. *α*, *Occidentalis*.

PLATE MCLIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXLII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2350.

S. Occidentalis, Lycopl. Bab. Man. Brit. Bot. ed. vi. p. 281. Boiss. in D.C. Prod. Vol. XII. p. 648. Reich. fil. l. c. 62.

S. Limonium, var. β, Sm. Eng. Fl. vol. ii. p. 116.

Leaves oblanceolate or oblanceolate-spathulate, obtuse or subacute. Scape branched often from below the middle; branches ascending, generally solitary, the lower ones sometimes sterile. Spikes alternate or in pairs, ascending or erect, rather slender.

Var. *β*, *intermedia*.

S. Dodartii, Bab. in Man. Nat. Hist. ser. ii. Vol. III. p. 440. Man. Brit. Bot. ed. iv. p. 270.

Leaves oblanceolate or oblanceolate-spathulate, obtuse, or subacute. Scape branched from the middle or from above the middle, rarely below it; branches ascending, generally solitary, rarely a few of the lower ones sterile. Spikes alternate or in pairs, spreading or spreading-ascending, thick.

(?) Var. *γ*, *Dodartii*.

PLATE MCLX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXLII. Fig. 1.

Billot, Fl. Gall. et Germ. Exsicc. No. 1054.

S. Dodartii, Gir. Bab. Man. Brit. Bot. ed. vi. p. 180. Boiss. in D.C. Prod. Vol. XII. p. 648. Gren. & Godr. Fl. de Fr. Vol. II. p. 742. (?) Reich. fil. l. c. p. 63.

Leaves obovate-spathulate, rounded at the apex. Scapes branched only in the upper half; branches short, spreading, often in pairs, none of them sterile. Spikes often aggregated in threes at the extremity of the branches, spreading, very thick.

On rocks and cliffs, by the margins of brackish ditches, and in the drier parts of salt marshes. Rather common in the south of England, extending north to Lincolnshire on the east coast, and to Cumberland and the Mull of Galloway on the west. Local, but distributed at

intervals over the whole Irish coast. I am unable to separate the stations for var. α and β : I have var. β from Norfolk and Glamorganshire. Of var. γ , Professor Babington has a specimen said to have been gathered in the Isle of Portland by the late Professor Henslow, but Mr. T. B. Flower and myself searched there in 1866 and found only the common form.

England, Scotland, Ireland. Perennial. Late Summer, Autumn.

A very variable plant with a long woody taproot passing insensibly upwards into a rhizome, which is sometimes branched, but more often only many-headed, each head or branch producing a rosette of leaves. Leaves 1 to 5 inches long, variable in breadth, and sometimes distinctly petiolate, at other times, especially in the smaller forms, with scarcely any footstalk. Scapes 2 inches to 1 foot high or more (the Rev. W. W. Newbould informs me he has seen it on Shakespeare's Cliff, with a stem nearly 2 feet high), branched usually from about the middle, but sometimes below it; in the latter case several of the lower branches have the bracteoles of the spikelets empty. The spikes vary also in the proximity of their spikelets, and consequently in their thickness. The bracteoles have generally a broad reddish belt between the green portion and the white margin, but in the plant I collected in the Isle of Portland, which Professor Babington unhesitatingly refers to *S. occidentalis*, they are wholly green and white, and in var. γ , of which I have not seen fresh specimens, they are said to be always destitute of the reddish band. The calyx limb is white. The corolla bright purplish blue, rather darker than *S. Limonium*, but of nearly the same size. The plant is of a rather dull green, the scape and branches generally smooth; but in the plant I collected at Portland they are rough with small projections, and much thicker than in the other forms.

Var. β appears to pass insensibly into var. α , but Professor Grenier names the Norfolk plant *S. Dodartii*, and one specimen from Cley, in Mr. H. C. Watson's herbarium, is so named by M. Lloyd.

The var. γ I only know from the specimens in Billot's "*Flora Exsiccata*." It has broader and more rounded leaves than the other two forms, is a much stouter plant, and has the end of the branches forked, terminating in a pair of spikes, with one between them. Judging from these examples, it is difficult to regard it as more than a luxuriant form of *S. binervosa*.

Lesser Sea Lavender.

SPECIES III.—**STATICE CASPIA.** Willd.

PLATE MCLXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXLII. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 446.

S. bellidifolia, "*Gouan*;" *Gren. & Godr. Fl. de Fr.* Vol. II. p. 749.

S. reticulata, *M. Bieb. Sm. Engl. Bot.* No. 328 (non *Linn.*).

Rootstock woody. Leaves shortly stalked, oblanceolate or oblance-

late-spathulate, with no veins except a midrib. Scapes paniculately branched from a little above the base; branches ascending-spreading, the greater number of the lower ones sterile and destitute of spikelets. Spikelets 2- to 3-flowered, arranged in 2-ranked unilateral spreading straight or slightly recurved spikes. Innermost bracteole one-third longer than the intermediate one, and more than twice as long as the outer one. Calyx segments broadly ovate, rounded, apiculate, without teeth between them. Scapes and branches scabro-papillose.

On the drier parts of sandy salt marshes, and by the sides of brackish ditches. Rare. Round the coasts of the Wash, Norfolk, including the north of Cambridge and south Lincoln; found by Professor Babington in Suffolk, but not included in Henslow and Skeppar's Flora of that county.

England. Perennial. Late Summer, Autumn.

Rootstock with numerous heads close together, each producing a few leaves, which are rarely more than 1 inch long (including the petiole) and which usually decay before the plant has done flowering. Stems decumbent, spreading in a circle, 3 inches to 1 foot long, generally branched nearly to the base, and with very numerous repeatedly forked barren branches, the ultimate divisions divaricate and mostly destitute of spikelets. Bracts with a much broader white membranous margin than in the other British species. The corolla much smaller and pale lilac, not purplish blue.

Matted Sea Lavender.

ORDER LVIII.—PLANTAGINACEÆ.

Herbs, generally with the leaves all radical: more rarely with the stems elongated and sometimes shrubby at the base, with the leaves opposite. Flowers perfect or unisexual; in the former case with cylindrical or ovoid or headlike spikes; when unisexual, with the male flowers solitary and stalked, and the female 2 or 3 together and sessile. Calyx free from the ovary, persistent, 4-partite, in the male or perfect flowers: in the female of 3 sepals, subunilateral. Corolla persistent, hypogynous: in the male and perfect flowers, salvershaped, with a 4-partite scarious limb: in the female flowers, urceolate, and unequally 3- or 4-toothed. Stamens 4, very rarely 1, in the perfect flowers inserted on the middle of the tube of the corolla, in the male flowers hypogynous, in both alternate with the corolla segments; filaments much exserted; anthers versatile, caducous. Ovary free: in the perfect flowers imperfectly 2-

or 4-celled: in the female 1-celled; placenta central, winged; ovules definite; style single, simple, terminal. Fruit, in the perfect flowers, opening transversely: in the female, indehiscent and bony. Albumen dense, fleshy.

GENUS I.—PLANTAGO. *Linn.*

Flowers perfect, arranged in spikes. Calyx 4-cleft. Corolla salver-shaped; tube ovoid, the limb spreading or reflexed, 4-partite. Stamens inserted in the tube of the corolla. Capsule bursting transversely, 2-celled or 3- or 4-celled by the presence of false dissepiments, produced by wings given off from the placenta, each cell containing one or more seeds.

Herbs with the leaves all radical, frequently ribbed: more rarely herbs or undershrubs with stems bearing opposite linear leaves. Flowers in subglobular, oblong or cylindrical imbricated spikes. Filaments and style very long.

The name of this genus of plants is derived from *Planta*, the sole of the foot, because its leaves lie flat on the ground like the sole.

SPECIES I.—PLANTAGO MAJOR. *Linn.*

PLATE MCLXII.

Billot, Fl. Gall. et Germ. Exsicc. No. 2729.

Leaves all radical, on rather long channeled petioles; lamina broadly oval or oval-ovate, 3- to 7-ribbed, repand or more or less dentate, especially towards the base. Scape not furrowed, not much exceeding the length of the leaves, the flowerless part of the scape shorter than the leaves or scarcely equalling them. Bracts ovate, about as long as the calyx, boat-shaped, glabrous. Sepals glabrous, bluntly keeled. Corolla tube glabrous. Capsule imperfectly 2-celled; seeds 2 to 4 in each cell. Plant sparingly hairy or subglabrous.

Var. α , *genuina*.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXVIII. Figs. 1 and 2.

P. major, *Gren. & Godr.* Fl. de Fr. Vol. II. p. 720. *Reich. fil.* l. c. p. 52.

Leaves ascending. Scapes erect or ascending, straight. Spikes usually lax at the base, tapering towards the apex.

Var. β , *intermedia*. *Decaisne.*

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Pl. MCXXXVII. Fig. 1.

P. intermedia, "*Gilb.*" *Gren. & Godr.* Fl. de Fr. Vol. II. p. 720. *Reich. fil.* l. c. p. 53.

Leaves spreading. Scapes decumbent and curved at the base, then erect. Spikes dense, cylindrical.

By roadsides in waste places, in cultivated ground, and in meadows and pastures. Very common, and generally distributed. Var. β in dry places.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Rootstock short, thick, premorse, at least in old plants, 1-headed. Leaves with the petiole 1 to 6 inches long; the lamina 1 to 6 inches; in var. α generally shorter than the petiole, in var. β usually longer, but this is not constant. Scapes 1 to 18 inches high, the spike in fruit varying from $\frac{1}{2}$ inch to nearly 1 foot long. Bracts green on the back, pale and scarious at the borders. Sepals all alike broadly oval, obtuse, broadly white and scarious at the margins. Segments of the corolla broadly lanceolate, scarious. Stamens not much longer than the corolla; anthers pale purple. Capsule ovate-ovoid; seeds black, dim, roughened, plano-convex, angular. Plant dull green. Scapes generally with adpressed pointed hairs; petioles with spreading jointed hairs, the leaves also frequently sparingly clothed with similar hairs.

Var. β is common by roadsides and in other dry places, but it seems to have no claim to be considered even a subspecies. The leaves vary in both varieties in respect to their base being dentate or nearly entire. The seeds of var. β are usually brown instead of black, and the spikes thicker and less tapering, and commonly much more densely flowered; for though sometimes slightly interrupted towards the base, they are so in a less degree than in the typical form. It never seems to attain so great a size as var. α , but similar variations occur in *P. media* and *P. lanceolata*.

Greater Plantain.

French, *Plantain à larges feuilles*. German, *grosser Wegerich*.

This plant is sometimes called "Waybread," a corruption, it is supposed, of "Way-bred," from its growing by waysides and footpaths. Some authors imagine that even this is a departure from its old Saxon name of *wabret*, by which it is yet commonly known in Teviotdale. This name occurs in our early poets, and one of them, humorously describing a bee's pilgrimage, says—

"And with a wabret leaf he made a wallet,
With scrip to beg his crumbs and pick his sallet."

In some places the plantain is called Cuckoo's Bread; and in Devonshire it is said to have been once a maiden who, watching by the wayside for her lover, was changed into the plant, which still loves to fix itself beside the beaten path. Once in seven years it becomes a bird, either the cuckoo or the cuckoo's servant, the *dienick*, as it is called in Devonshire, the German "*wiedkopf*," which is said to follow its master everywhere. In some parts of Germany the call of the cuckoo is thought to disclose mines; and certain plants which have received from it their name, and some share of its prophetic character, are thought to grow in most luxuriance where the depths of the earth are rich in metal. Whether the plantain be among these I cannot say, but it seems almost too common to have any claim to such augury. The leaves possess some degree of astringency, and when bruised and rubbed on the part affected,

are said to reduce the swelling, pain, and inflammation caused by the bite or sting of insects; but when we read the list of disorders for which this common herb was considered a remedy, we can but wonder at the powerful imaginations of the old physicians, as well as their patients. So great was its reputation for closing wounds, that Pliny says of this or an allied species, on "high authority," that "if it be put into a pot where many pieces of flesh are boiling, it will solder them together." No wonder then that Romeo said of the broken shin—

"Your plantain leaf is excellent for that."

The Highlanders ascribe such virtue to the plant in healing wounds that its Gaelic name signifies "healing plant."

Decoctions of plantain entered into almost every old compounded remedy, and it was boiled with docks, comfrey, and a variety of flowers. Pliny tells how an eminent physician prided himself on having first discovered this wonderful herb. "Notwithstanding," adds the Roman naturalist, "it be a trivial and common hearbe, trodden under every man's foot." Cowley says of it—

"Madness of dogs most certainly it cures,
As the great author Pliny us assures."

It was once a popular belief that before a toad had a battle with a spider, she would fortify herself with some of this plant, and that if wounded in the encounter, she would again have recourse to it as a cure.

The small mucilaginous seeds of the plantain are relished by most little birds, and quantities of the ripe spike are gathered near London for the supply of the caged birds of the metropolis. From their small size and the abundance with which they are produced in every field, the seeds have been carried by our race to most countries where we have made settlements—a fact which induced the natives of North America to call the plant by a name signifying the "Englishman's foot," it appearing to spring up wherever the soil was trodden by the bold intruders to whom they were forced to yield their old hunting grounds.

SPECIES II.—**PLANTAGO MEDIA.** *Linn.*

PLATE MCLXIII.

Reichb. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXIX. Fig. 3, and MCXXXVII. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 7730.

Leaves all radical, with rather short often indistinct winged petioles, or subsessile; lamina oval or elliptical-oval, attenuated at each end, 5- to 9-ribbed, repand or more or less dentate throughout. Scape not furrowed, much exceeding the length of the leaves; flowerless part of the scape much longer than the leaves. Bracts oblong-ovate, rather shorter than the calyx, boat-shaped, glabrous. Sepals glabrous, not keeled. Corolla tube glabrous. Capsule imperfectly 2-celled. Seeds 1 in each cell, flat on the inner face. Plant hispid-pubescent.

By roadsides, on banks in waste places and pastures. Very common in chalky districts, more rare elsewhere, but generally distributed

over the whole of England. Local in Scotland, though extending north to Aberdeenshire, where it grows on the banks of the Dee, opposite Kingcausie. In Ireland it occurs only in places where it is supposed to have been introduced.

England, Scotland, [Ireland.] Perennial. Summer, Autumn.

Rootstock 1-headed, passing gradually downwards into a long tapering taproot. Leaves generally spreading in a circle, 2 to 6 inches long, the lamina much longer than the petiole, but when the plant grows in damp shady places the leaves are erect, sometimes 14 inches long, with the petiole nearly as long as the lamina, but still passing insensibly into the latter. Scapes 6 to 18 inches high, curved at the base, then erect, except when the leaves are erect, in which case there is scarcely any curvature at the base. Bracts often tinged with purple, with silvery margins. Stamens much longer than the corolla; filaments purple; anthers yellowish white. Capsule ovoid. Seeds oblong-ovoid, plano-convex, dark brown, shining, the surface uneven. Plant hoary, the scapes, especially when young, densely pubescent with adpressed jointed hairs; leaves also pubescent, but more sparingly so than the scapes; crown of the rootstock usually densely woolly.

Honey Plantain.

French, *Plantain moyen.* German, *mittlerer Wegerich.*

SPECIES III.—PLANTAGO LANCEOLATA. *Linn.*

PLATES MCLXIV. MCLXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXX. Figs. 1, 2, 3, and Tab. MCXXXVII. Fig. 3.

Billot, Fl. Gall. et Germ. Exsicc. No. 2731.

Leaves all radical, with rather long or short winged or channeled petioles; lamina strapshaped-elliptical or elliptical or oval, attenuated at each end, 3- to 7-ribbed, repand, or denticulate throughout. Scape deeply furrowed, the flowerless part exceeding the length of the leaves. Bracts ovate, acuminate, longer than the calyx, not hooded at the apex, slightly hairy on the midrib or glabrous. Sepals hairy at the apex, the 2 next the rachis strongly keeled. Corolla tube glabrous. Capsule imperfectly 2-celled; seeds 1 in each cell, shining, oblong-semicylindrical, with a deep furrow on the inner surface. Plant subglabrous, or with the scapes generally hairy, and the leaves sometimes so; neck of the rootstock woolly.

Var. *α*, *vulgaris.*

PLATE MCLXIV.

Rootstock 1- or few-headed. Leaves shortly stalked, spreading or

ascending. Scapes more or less curved towards the base. Spikes oblong or roundish. Bracts and sepals marked with fuscous or black blotches.

Var. β , *major*.

Rootstock 1- or few-headed. Leaves with long distinct petioles, erect. Scapes erect, scarcely curved at the base. Spikes cylindrical or oblong-cylindrical. Bracts and sepals marked with fuscous or black blotches.

Var. γ , *Timbali*.

PLATE MCLXV.

Reichb. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXXVII. Fig. 4.

P. Timbali, Jord. Pug. Pl. Nov. p. 138.

Rootstock many-headed, cespitose. Leaves distinctly stalked, erect or ascending. Scapes erect, straight, or very slightly curved at the base. Spikes cylindrical or oblong-cylindrical. Bracts with the scarious portion silvery white, with subulate points, and as well as the sepals without fuscous blotches.

In meadows, pastures, waste places, by roadsides, &c. Very common, and generally distributed. Var. β in grass fields and meadows. Var. γ in fields of clover, sainfoin, and lucerne, but apparently not indigenous.

England, Scotland, Ireland. Biennial or Perennial. Spring to Autumn.

A very variable plant, sometimes, as in var. α , with the leaves, including the petioles, only about 1 inch long, in var. β sometimes more than 1 foot; the scapes varying from 2 inches to 2 feet in height; the spikes sometimes globular, and scarcely $\frac{1}{4}$ inch in diameter, sometimes cylindrical and 2 or 3 inches long, and between these extremes every intermediate form is to be found. The leaves are sometimes so broad and hairy that the plant resembles *P. media*, but the scapes are furrowed, the bracts longer and not hooded at the apex, and the 2 inner calyx segments are keeled and abruptly rounded off at the apical angle of the back, with a short point where the curved line meets the straight margins. The anthers in all the forms are yellowish-white, on very long filaments.

Var. *Timbali* has much the aspect of a subspecies, but Mr. Hewett Watson has raised from the seed of this form a plant much resembling the ordinary state, with black marks on the bracts: and the elongated point of the bracts does not appear to be a constant character.

Common Rib-grass.

French, *Plantain lancéolé*. German, *lanzettlicher Wegerich*.

This plant, which abounds in every meadow, was brought into notice some years

ago as a fodder plant, but is seldom now cultivated. Its mucilaginous leaves are relished by sheep, and to a certain extent by cows and horses; but it does not answer as a crop unless on very poor land where nothing else will grow. Moreover, it is bitter, and in pasture destroys the more delicate herbage around it, by its coarse leaves. The seeds are covered with a coat of mucilage, which separates readily when they are macerated in hot water. The gelatinous substance thus formed is used for stiffening some kinds of muslin and other woven fabrics to a small extent. The leaves contain a good fibre, which might be adapted to some manufacturing purpose.

SPECIES IV.—**PLANTAGO MARITIMA.** *Linn.*

PLATES MCLXVI. MCLXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXXII. Fig. 1.

Leaves all radical, without distinct petioles, strapshaped-oblongate or linear-strapshaped or linear, generally 3- to 5-, more rarely 1- or 7-ribbed, fleshy, entire or remotely denticulate throughout. Scape not furrowed, generally exceeding the leaves; flowerless part of the scape generally longer than the leaves. Bracts ovate-lanceolate, rather shorter than the calyx, not hooded at the apex. Sepals glabrous (rarely slightly hairy), the 2 next the rachis keeled, the keel sharp and denticulate, but not distinctly winged. Corolla tube downy. Capsule imperfectly 2-celled. Seeds 1 in each cell, flat on the inner surface. Plant glabrous, rarely pubescent; the scapes generally more or less hairy.

Var. *α, latifolia.*

PLATE MCLXVI.

Leaves strapshaped-oblongate, 3- to 7-ribbed. Plant glabrous, or with a few hairs on the scape at the crown of the rootstock, and sometimes pubescent on the scapes.

Var. *β, linearis.*

Leaves linear-strapshaped, 3-ribbed, rarely with only 1 prominent nerve. Plant glabrous, generally with hairs at the crown of the rootstock, and sometimes pubescent on the scapes.

Var. *γ, hirsuta.*

PLATE MCLXVII.

Leaves linear-strapshaped or semi-cylindrical, 3- or 1-nerved. Plant densely pubescent.

In salt marshes and banks by the sea; also by the side of streams, on mountains. Rather common, and generally distributed. Var. *γ* I have seen only in Orkney, where I have gathered it on Houton

Head, and Dr. Walker Arnott records it from near the House of Skail; both these stations are on the Mainland of Orkney.

England, Scotland, Ireland. Perennial Summer, Autumn.

Almost as variable a plant as *P. lanceolata*. Leaves varying from 1 inch to 1 foot or more long, and the scapes from 2 to 18 inches; the width of the leaves is also very variable, sometimes the breadth is the same throughout, sometimes greater near the apex, and then again diminishing to the apex; the upper side is usually channeled, rarely flat; the underside is more or less keeled. Bracts green on the back, with white scarious margins. Stamens much exserted; anthers pale yellow. Capsule ovate-conical, longer than the calyx. Seeds brown, minute, oblong, ovoid, flat on the face, with a short depression, not a furrow, and with a narrow white membranous wing at each end.

I cannot see how the mountain plant can be distinguished from that growing on the shore even as a variety. The leaves are certainly as much channeled in those I have seen, and the rootstock not more woody than in the coast plant. Neither can I perceive any difference in the bracts or capsule. All these points are liable to variation in the coast plant: the number of veins in the leaves, and their being equidistant or not, is also a very variable character.

The var. γ is singular from being densely hairy.

Sea Plantain.

French, *Plantain maritime*. German, *Meerstrands-Wegerich*.

This species of plantain is so relished by sheep as food, and is considered so good for them, that in North Wales, where it is cultivated, it is called "Sheep's herb," and the Welsh have two names for it, signifying "the sheep's favourite morsel," and "the suct producing."

SPECIES V.—*PLANTAGO CORONOPUS*. *Link.*

PLATE MCLX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXXX. Figs. 5 to 8.

Willot. Fl. Gall. et Germ. Exsicc. No 840.

Leaves all radical, without distinct petioles, strapshaped or linear, 1-ribbed, fleshy, generally furnished towards the apex with strap-shaped acuminate ascending lobes, so as to become pinnatifid, rarely destitute of lobes, or with merely a few projecting teeth; lobes entire, or again pinnatifid. Scape not furrowed, usually exceeding the leaves, the flowerless part generally about as long as the leaves. Bracts roundish ovate, abruptly acuminate into long lanceolate subulate points, longer than the calyx, not hooded at the apex. Sepals slightly hairy on the back, the 2 next the rachis keeled, the keel raised into a

broad scarious ciliated wing. Corolla tube downy. Capsule imperfectly 3- or 4-celled. Seeds 1 in each cell, flat on the inner face. Plant generally more or less pubescent; scapes almost always pubescent.

On sandy commons, roadsides, waste places, and chalky banks. Rather common, and generally distributed in England. More rare in Scotland, and confined to the neighbourhood of the sea coast. Common in Ireland, on the coast.

England, Scotland, Ireland. Biennial. Spring to Autumn.

Very variable in size, and also in the lobing of the leaves, which are from 1 to 12 inches long. Scapes 2 to 18 inches long, generally decumbent at the base. Rootstock with one or more crowns; in dry situations with the leaves spreading flat on the ground, and the scapes decumbent at the base: in damper places the leaves are ascending or erect. Spikes slender, $\frac{1}{4}$ to 2 inches long, recurved-reclinate before the flowers expand. Anthers pale yellow.

The long point to the bracts, strongly winged sepals, and 3- or 4-celled and seeded capsule, readily distinguish the entire leaved forms from *P. maritima*, to which they bear some resemblance. The much commoner pinnatifid-leaved forms cannot be confounded with any other British species.

Buck's-horn Plantain.

French, *Plantain corne de cerf*. German, *krähenfussartiger Wegerich*.

GENUS II.—LITTORELLA. *Linn.*

Flowers unisexual, monœcious. Male flowers solitary at the summit of the scape: calyx 4-partite: corolla cylindrical, with a 4-partite limb: stamens hypogynous. Female flowers 2 or 3 together at the base of the peduncle of the male flowers: calyx of 3 unequal sepals: corolla urceolate: fruit bony, indehiscent, 1-seeded.

An aquatic herb, creeping at the bottom of the water, producing semi-cylindrical smooth leaves; male flowers with very long filaments.

The name of this genus of plants is derived from the word *Littus*, the shore, from the species delighting in moist situations.

SPECIES I.—LITTORELLA LACUSTRIS. *Linn.*

PLATE MCLXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXVI. Figs. 3 and 4.

Billot, Fl. Gall. et Germ. Exsicc. No. 628.

The only known species.

On the margins of lakes and ponds, growing under the water and

along the margins. Rather common, and generally distributed; more abundant in the north.

England, Scotland, Ireland. Perennial. Summer, Autumn.

Rootstock slender, throwing out numerous runner-like branches, which at intervals produce plants like the parent, and in this way a dense carpeting is formed in the shallow water in which it grows. Leaves all radical, fleshy, linear-subulate, semi-cylindrical, flattened or slightly channeled above, dilated and sheathing at the base, 1 to 6 inches long. Male flowers on slender scapes, usually rather shorter than the leaves, with 1 scarious ovate-amplexicaul bract below the middle (rarely with 2 bracts): sepals oblong-elliptical, obtuse, herbaceous, with scarious margins: stamens very long; anthers pale yellow; ovary abortive, fusiform, with a short style. Female flowers sessile, with a very long style. Plant dark green, glabrous, or rarely slightly pubescent.

Plantain Shore-weed.

French, *Littorelle des lacs.* German, *Sumpf-Strandling.*

EXCLUDED SPECIES.

PLANTAGO ARGENTEA. *Linn.*

"Some few years ago I saw a specimen in the hands of Sir William Hooker, which had been sent to him from Ireland by Mr. Andrews, and which apparently corresponded with continental examples of *P. argentea* in the herbarium of Sir William."—H. C. Watson, in "*Cybele Britannica.*" Vol. II. p. 311.

PLANTAGO ARENARIA. *Linn.*

Plantago alpina, *Linn.* and *Plantago serpentina*, *Vill.* have been recorded as British, but forms of *P. maritima* seem to have been taken for them.

Found a few years ago abundantly on the sand hills at Burnham, Somerset; but in 1846 Mr. T. B. Flower was unable to find a single specimen; in 1867 a few were observed. In 1865 I found a few plants of it at Southend, Essex.

PLANTAGO PSYLLIUM. *Linn.*

Has been reported to have been found at St. Aubin's Bay, Jersey, in August, 1848, but has not permanently established itself.

SUB-CLASS V.—**APETALÆ.**

Perianth usually single or none. Calyx free or more or less adhering to the ovary, herbaceous or petaloid, sometimes rudimentary or absent. Petals none, or very small, or similar to the calyx. Ovules enclosed in an ovary, fertilised by the pollen falling on a stigma, and not directly upon the ovule. Ovules containing only a primary embryo sac.

ORDER LIX.—**PARONYCHIACEÆ.***

Small annual or perennial herbs, the stems usually procumbent and diffuse, sometimes shrubby at the base. Leaves opposite, rarely alternate, almost always with minute scarious stipules. Flowers perfect, very minute, in terminal and axillary cymes or glomerules. Calyx of 4, 5, or 3 sepals, or 4- or 5-cleft or partite. Petals usually none or reduced to 5 small filaments, rarely conspicuous. Stamens as many as the divisions of the calyx. Ovary free from the calyx, 1-celled; ovules solitary or rarely several on a free central placenta; styles 2 to 3, sometimes none; in which case the ovary has 2 or 3 distinct stigmas. Capsule 1-celled, generally a utricle. Seed 1 or rarely several, with a recurved embryo and mealy albumen.

TRIBE I.—**PARONYCHICÆ.**

Sepals free nearly to the base. Petals minute or absent. Stipules present, usually scarious.

GENUS I.—**CORRIGIOLA.** *Linn.*

Calyx herbaceous, persistent, 5-partite; segments concave, ovate, obtuse, with white scarious margins. Petals 5, perigonous, oval or oblong, as long as the calyx. Stamens 5. Ovary 1-celled, and cor-

* The order Paronychiaceæ is closely related to the polypetalous order Caryophyllaceæ on the one hand, and to the apetalous order Amarantaceæ on the other. I have followed Mr. Bentham in placing it in juxtaposition to the latter. The group Apetalæ is almost universally admitted to be as unnatural as one of Linnæus' classes founded on the number of stamens, and it is retained solely on account of convenience, the absence of petals being a character readily recognisable, although unfortunately all apetalous plants cannot be placed in this group.

taining a single ovule; stigmas 3, sessile. Fruit ovoid-trigonus, bony, indehiscent, enveloped in the connivent calyx segments, which remain unaltered. Seed solitary.

Small herbs or undershrubs with the leaves alternate, oblong or linear, fleshy, glaucous, furnished with scarious stipules. Flowers small, crowded in axillary glomerules arranged in racemes, spikes, or corymbs at the extremity of the stem and branches.

The name of this genus of plants comes from the word *Corrigia*, a thong of leather, to which the leaves of the species may have a fancied resemblance.

SPECIES I.—**CORRIGIOLA LITTORALIS.** *Linn.*

PLATE MCLXX.

Billot, Fl. Gall. et Germ. Exsicc. No. 19.

Annual. Leaves oblanceolate-strapshaped. Flowers in small cymes at the extremity of the stems, and of short leafy lateral branches.

On sandy shores about Helston, Cornwall; and on Slapton Sands and near Start Point, Devon.

England. Annual. Late Summer, Autumn.

Stems numerous from the crown of the root, decumbent, 3 to 9 inches long, with numerous alternate leaves. Leaves slightly fleshy, $\frac{1}{4}$ to 1 inch long, attenuated towards the base, but not distinctly stalked, each one with a pair of large scarious half sagittate stipules. Flowers about the size of the mignonette seed, shortly stalked, in cymose clusters confined to the apex of the stem, and of the branches immediately beneath it. Sepals ovate, obtuse, green or purplish, with broad pure white scarious margins. Petals white, as long as the calyx. Capsule enveloped in the persistent calyx, brown, globular-ovoid, marked with 3 longitudinal ribs. Plant glabrous, glaucous.

Sand Strapwort.

German, *gemeiner Strandling*.

GENUS II.—**HERNIARIA.** *Tournef.*

Calyx herbaceous, persistent, 5-partite; segments slightly concave, ovate, obtuse, or subacute, with pellucid scarious margins. Petals (?) 5, perigynous, resembling barren filaments. Stamens 5, or fewer by abortion. Ovary 1-celled, containing a single ovule; stigmas 2, subsessile. Fruit ovoid, membranous, indehiscent, enveloped in the connivent calyx segments, which remain unaltered. Seed solitary.

Small herbs or undershrubs, with the leaves opposite, glabrous or

hairy, with scarious stipules. Flowers minute, numerous, in axillary glomerules along the stem and branches.

This genus of plants obtained its name from the supposed efficacy of the species in curing hernia.

SPECIES I.—**HERNIARIA GLABRA.** *Lin.*

PLATE MCLXXI.

Root slender. Stems numerous from the crown of the root, spreading, herbaceous, not rooting at the base, nearly straight, regularly branched, branches spreading alternately, distichous, diminishing in size nearly regularly towards the apex of the stem. Leaves oblong-oval or oblong-oblongate, attenuated towards the base. Stipules dirty white, rather small. Flowers subsessile, in axillary clusters. Calyx segments obtuse, glabrous. Stigmas divergent. Plant glabrous, with the stem and branches clothed with minute reflexed hairs all round; leaves wholly glabrous, or sometimes ciliated at the margins.

On sandy and gravelly commons, and borders of fields. Very rare. The only specimens I have are from near Six-mile Bottom, Cambridge, from the Rev. W. W. Newbould. There are also specimens in Mr. H. C. Watson's herbarium from near Narborough, Norfolk. It is probable that the plants from Wilsford, Lincoln, from Suffolk, and the one formerly found on Finchley Common, all belong to this species. All the Cornish and Guernsey specimens which I have seen must be referred to *H. ciliata*, but Professor Babington says *H. glabra* occurs at Ruan Minor, Cornwall.

England. Annual or Biennial (Perennial?). Late Summer, Autumn.

Root a slender taproot, giving off numerous prostrate stems, 3 to 12 inches long, which spread in all directions and are nearly straight, not at all suffrutescent at the base, if indeed the plant be not always biennial; branches spreading, all much shorter than the stem, diminishing in size from near the base to the apex, so that each stem with its branches forms an irregular triangle. Leaves opposite, $\frac{1}{6}$ to $\frac{1}{3}$ inch long, gradually attenuated from a little beyond the middle to the base. Flowers about $\frac{1}{10}$ inch across, crowded in clusters in the axils of the leaves on the stem and lateral branches; the clusters on the short branches towards the apex of the stem usually confluent.

Professor Babington says that the stem of this plant is usually rooting, but it is not so in the British or foreign specimens I have had an opportunity of examining: perhaps it roots only late in the year. I have little doubt it ought to be joined as a subspecies with *A. hirsuta*, of which it has perfectly the habit and branching, and only

differs in being nearly glabrous, in having the flowers a little smaller, and the sepals more obtuse.

Glabrous Rupturewort.

French, *Renouée fluette*. German, *kahles Tausendkorn*.

Culpepper tells us that this herb "bath not his name in vaine; for it is found by experience to cure the rupture, not only in children, but in elder persons, if the disease be not too inveterate, by taking a dram of the powder of the dried herb every day in wine for certain days together."

SPECIES II.—**HERNIARIA CILIATA.** Bab.

PLATE MCLXXII.

Root stout. Stems numerous from the crown of the root, spreading, suffrutescent, rooting at the base, flexuous, irregularly branched; branches often in tufts from the apex of the portion of stem which has survived the winter, and alternate on the shoots of the year, ascending, distichous, diminishing in size irregularly towards the apex of the stems. Leaves oblong-oval or roundish-oval, rather abruptly contracted towards the base. Stipules large, silvery white. Flowers subsessile in axillary clusters. Calyx segments obtuse, glabrous or ciliated. Stigmas divergent. Plant glabrous, with the branches clothed with minute deflexed hairs on the upper side only; leaves generally ciliated on the margins.

On dry banks and commons. Very rare. The Lizard Point, Cornwall, L'Ancrese Common and Port de fer, Guernsey. There are specimens in Mr. Watson's herbarium from Dr. W. Andrews, which on the ticket are localised from Kerry, but as no notice is taken of this station in the *Cybele Hibernica*, it is probable some mistake has been made; these specimens have the straggling growth and elongated internodes of cultivated examples, and have probably been inadvertently mixed with plants collected in Kerry.

England, [Ireland.] Perennial. Spring to Autumn.

A stouter plant than *H. glabra*, with the stems branched and interlacing, so as to form large circular tufts; in cultivation these tufts are often a yard across, remaining green and growing during the winter even in the neighbourhood of London; so that it is not merely the milder atmosphere of Cornwall or Guernsey that allows the plant to be an evergreen undershrub. Leaves $\frac{1}{10}$ to $\frac{1}{4}$ inch long, usually much broader than in *H. glabra*, and narrowed from about the middle or more often from the basal quarter. Stipules triangular and ciliated as in *H. glabra*, but of a much purer white, showing very conspicuously in the young branches. Lateral branches towards the apex of the

stem usually shorter and more equal in size than in *H. glabra*, but I can see no difference as to the clusters being separate or distinct, which Professor Babington makes one of the distinguishing characters. In cultivated specimens, from a root received from the Cambridge garden by Mr. H. C. Watson as *H. ciliata*, the clusters are perfectly confluent on the lateral branches. On the wild Cornish plant they are sometimes confluent, sometimes distinct, in the latter case with fewer flowers than in the former; but the real distinction between *H. glabra* and *H. ciliata* lies in the suffrutescent growth of the latter, in which, as well as in the broad leaves and stem being pubescent only on the side away from the ground, it resembles *H. latifolia*, *Laperyouse*, though the latter plant differs in the more distinctly stalked and larger flowers, bristly-hairy sepals, and erect stigmas.

Ciliated Rapturewort.

GENUS III.—ILLECEBRUM. *Linn.*

Calyx coloured, parchment-like, persistent, 5-partite; in fruit segments keeled, pure white, oblong, thickened and slightly hooded at the apex, where they are produced into a subulate point. Petals (?) 5, perigynous, resembling barren filaments. Stamens 5. Ovary 1-celled, containing a single ovule; stigmas 2, subsessile. Fruit ovoid, membranous, opening at the base by 5 or 10 valves, which remain attached at the base, enclosed in the connivent calyx segments, which enlarge and become corky after flowering.

A glabrous herb with filiform procumbent stems, and broadly ovate opposite leaves, with minute scarious stipules. Flowers minute, sessile, aggregated in the axils of the leaves along the whole of the stem and branches.

The origin of the name of this genus of plants is from *Illecebra*, an enticement, as enticing the simpler into marshes and bogs.

SPECIES I.—ILLECEBRUM VERTICILLATUM. *Linn.*

PLATE MCLXXIII.

Billot, Fl. Gall. et Germ. Exsicc. No. 556.

The only known species.

In sandy bogs in the counties of Devon and Cornwall.

England. Annual. Late Summer, Autumn.

Stems numerous, procumbent, rooting at the base, very slender branched, 3 inches to 1 foot long. Leaves opposite, oval or roundish, attenuated at the base, but with scarcely any distinct stalk, $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Stipules large, wholly scarious and white. Flowers subsessile,

in fascicles of 3 or 4 in the axils of the leaves, and so appearing to be in whorls, with scarious bracts at the base. Calyx in fruit, pure white, opaque, the segments about $\frac{1}{10}$ inch long. Plant glabrous.

Whorled Illecebrum.

German, *quirblüthige Knorpelblume.*

TRIBE II.—SCLERANTHÆ.

Sepals united into a tube at the base. Petals none, unless the barren filaments represent them. Stipules absent.

GENUS IV.—SCLERANTHUS. *Linn.*

Calyx tube funnelshaped or ovoid-urceolate; limb 5-, very rarely 4-lobed; lobes herbaceous, with scarious margins, ovate, obtuse or acute. Petals (?) none. Stamens 5, inserted in the throat of the calyx tube, and opposite to its segments, usually alternating with 5 barren filaments (?). Ovary 1-celled, containing a single ovule; stigmas 2, elevated on 2 distinct styles. Fruit roundish-ovoid, membranous, indehiscient, enveloped in the tube of the calyx, which becomes enlarged and indurated.

Herbs generally dichotomously branched, with opposite linear or subulate leaves connate at the base, destitute of stipules. Flowers minute, sessile in lateral and terminal fascicles, or solitary in the forks of the stem.

The name of this genus of plants is derived from the Greek words *σκληρός*, hard, and *ἄνθος*, a flower, from the dry scarious texture of the calyx.

SPECIES I.—SCLERANTHUS ANNUUS. *Linn.*

PLATES MCLXXIV. MCLXXV.

Billot, Fl. Gall. et Germ. Exsicc. No. 20.

Annual or biennial. Flowers solitary in the forks of the stem and branches, and generally dichotomously fasciculate in the apex of the branches, or all in terminal fascicles. Calyx segments strapshaped-triangular or triangular, acute or subacute, with a very narrow membranous border.

Var. *α*, *genuinus*.

PLATE MCLXXIV.

Annual. Internodes elongated. Fruiting calyx tube with 10

deep furrows. Segments a little longer than the tube, ascending, acute. Flowers opening in summer and autumn.

Var. β , *biennis*.

PLATE MCLXXV.

Billot, Fl. Gall. et Germ. Exsicc. No. 3382. *S. biennis*, *Reuter*, "Bull. Soc. Hall, p. 20." Cat. de Genève, p. 183.

Biennial. Internodes very short. Fruiting calyx tube with 10 shallow furrows; segments rather shorter than the tube, erect, incurved, much broader and less acute than in var. α . Flowers produced only in spring and early summer.

Var. α in cultivated ground and waste places. Common, and generally distributed, but becoming scarce in the north of Scotland.

Var. β on sandy and gravelly commons. Frequent in the vicinity of London. I have it also from St. David's, Pembrokeshire.

England, Scotland, Ireland. Annual or Biennial. Spring to Autumn.

Var. α has elongated decumbent diffusely branched stems, 3 to 9 inches long. Leaves slightly recurved, $\frac{1}{4}$ to $\frac{3}{4}$ inch long, strapshaped, acute, flat above, convex below, the bases enlarged and scarious at the margins, which are united so as to be connate. Flowers subsessile, $\frac{1}{8}$ inch long, the tube becoming hardened in fruit, and readily falling off when ripe, without permitting the fruit to escape. Plant green, glabrous; the stems hairy, and the margins of the leaves ciliated, the rest of the plant glabrous.

Var. β is very different in aspect, but these differences probably depend on the difference of situation. It is much smaller than var. α . The stems are rarely more than 1 to 3 inches long, suberect, numerous, and very slightly branched; the leaves are shorter, and less falcate. The calyx is about $\frac{1}{8}$ inch long; the tube less deeply furrowed; the teeth shorter, more triangular, more erect, and with much broader scarious margins. The bracts are shorter than the flowers, while in var. α they are generally a little longer.

Common Knapel.

French, *Guavelle*. German, *einjähriger Knaul*.

The Swedes inhale a decoction of this plant as a cure for toothache.

SPECIES II.—**SCLERANTHUS PERENNIS.** *Lim.*

PLATE MCLXXVI.

Billot, Fl. Gall. et Germ. Exsicc. No. 197.

Perennial. Flowers aggregated into dichotomous fascicles at the

apex of the stem and branches, rarely with a few solitary axillary ones beneath. Calyx segments oblong, obtuse, with a broad white scarious border.

In sandy fields. Rare. Norfolk and Suffolk, especially on the confines of the two counties. In the Manual of British Botany it is *S. biennis*; recorded also from Stanner rocks, Radnor.

S. perennis is very closely allied to var. β of *S. annuus*, and this latter form is indeed often mistaken for it, but the very obtuse calyx segments, with a much broader scarious margin, will always suffice to distinguish *S. perennis*. It is only dwarf forms of *S. perennis* that resemble *S. annuus*, for when it is luxuriant the stems are very numerous, nearly simple, and crowded with falcate and subsecund leaves, with fascicles of leaves in their axils. The fruiting calyx tube also is generally puberulent, less deeply furrowed, less constricted at the base of the teeth, which are always connivent and hooded at the apex; the plant is also much more glaucous, and the bracts shorter, seldom longer than the tube of the calyx; and the stamens are commonly longer than the styles, while the reverse is generally the case in *S. annuus*.

Perennial Knauel.

German, *ausdauerender Knauel*.

EXCLUDED SPECIES.

HERNIARIA HIRSUTA. *Linn.*

Eng. Bot. ed. i. No. 1379.

Included in the older British lists by mistake; but it has recently occurred near Coventry, no doubt accidentally introduced.

ORDER LX.—AMARANTACEÆ.

Annual or perennial herbs or undershrubs, with the leaves alternate or opposite, generally entire; stipules none. Flowers perfect or more generally polygamo-dioecious, each one generally with 3 scarious bracts, arranged in heads, spikes, or glomerules. Calyx scarious or more rarely herbaceous, of 3, 4, or 5 sepals, or 4- or 5-cleft or -partite. Petals none. Stamens hypogynous, usually 5, fertile, sometimes with tooth-like sterile ones alternate with the fertile ones, or all united into

a cup or tube. Ovary free from the calyx, 1-celled, with 1 or several ovules; style single, simple, sometimes none; stigmas lobed, or 2 to 3 and subfiliform. Fruit generally enclosed in the persistent calyx, usually a utricle bursting irregularly, more rarely splitting circumcissily or still more slender, berry-like. Seeds 1 or few, each one suspended from a funiculus which rises from the base of the ovary; embryo curved, surrounding fleshy albumen.

GENUS.—AMARANTUS.* *Linn.*

Flowers polygamo-monœcious, each furnished with 3 bracts. Sepals 3 to 5, rarely 2 to 4, distinct. Stamens 3 to 5, rarely 2 to 4; filaments subulate; anthers 2-celled; barren stamens none. Ovary 1-celled, 1-ovuled; styles or stigmas 2 or 3, filiform. Fruit a utricle, indehiscent or opening transversely. Seed vertical, lenticular, with a crustaceous testa, destitute of an arillus.

Herbs with alternate stalked leaves, frequently tinged with red or purple. Flowers minute, in glomerules arranged in spikes, and these again generally in panicles.

The derivation of the name of this genus of plants is from the negative *ἀ* in Greek and the word *μαραίνω*, to decay; because the flower does not soon decay when plucked.

SPECIES I.—AMARANTUS BLITUM. *Linn.*

PLATE MCLXXVII.

Stem glabrous, angular, decumbent, diffusely branched, the branches generally ascending. Leaves on long stalks, rhomboidal-ovate. Flowers in clusters in the axils of the leaves, and in small leafless axillary and terminal interrupted spikes on the upper part of the stem. Calyx 3-partite; segments obtuse, mucronate, longer than the bracts. Stamens 3 in the male flowers. Styles 3 in the female flowers. Utricle twice as long as the sepals when ripe, indehiscent. Seed lenticular, shining.

In rich cultivated ground, and on heaps of manure. Rare. Not even perfectly naturalised. It used to occur in Battersea fields, and is still occasionally to be found on Parson's Green, and elsewhere, to the west of London, but it is not persistent in its stations. It has been found near Cambridge, and in Huntingdonshire.

[England.] Annual. Autumn.

A coarse plant, with somewhat the habit of *Chenopodium polysper-*

* Frequently incorrectly written *Amaranthus*.

mum; the stem 6 inches to 2 feet long, generally more or less decumbent, but sometimes, in small specimens, erect or ascending. Lamina of the leaves 1 to 3 inches long, usually shorter than the petiole, somewhat wedge-shaped towards the base. Uppermost glomerules without leaves, so as to form a leafless interrupted spike, with similar but shorter spikes in the axils of the upper leaves. Seed erect, pitchy black, highly polished. Plant dull green, glabrous.

The pericarp is certainly indehiscent in all the British specimens I have seen, but Smith says of it, "When ripe bursting all round like that of plantain."

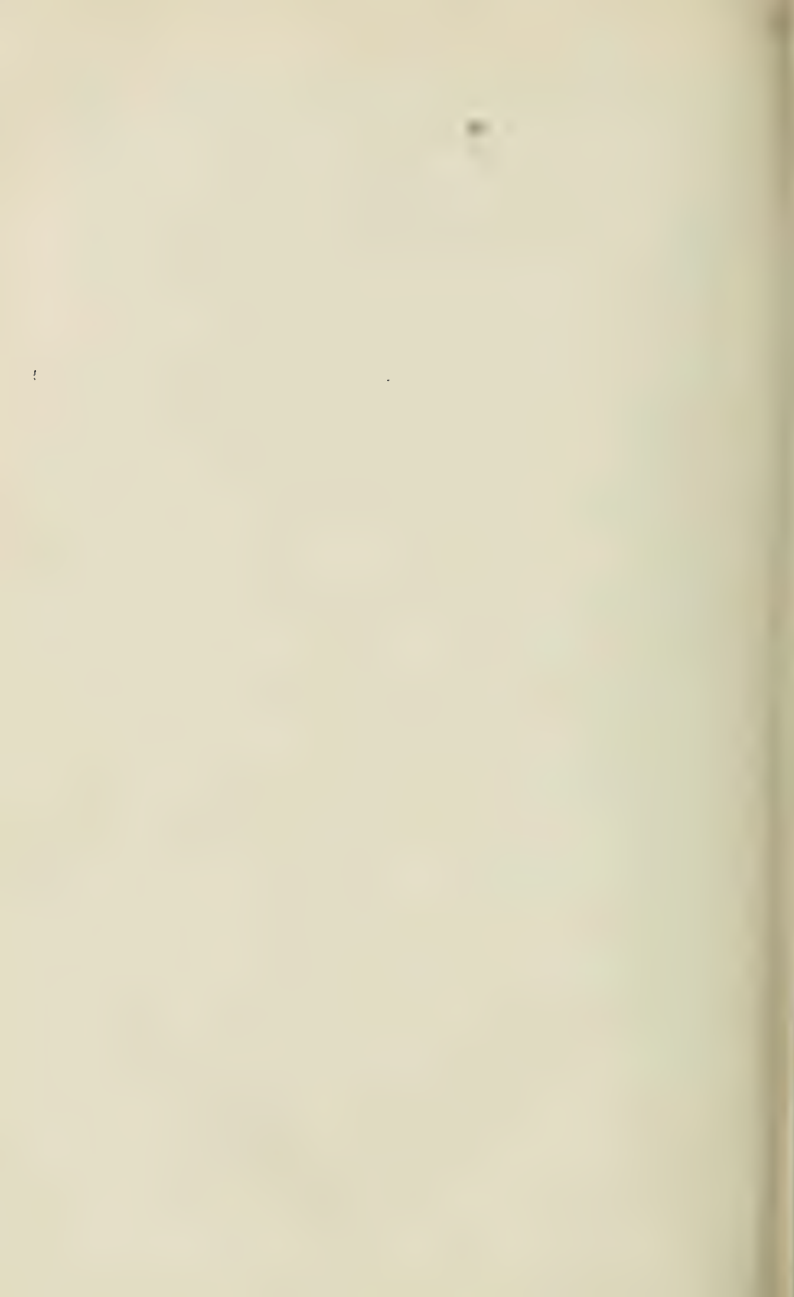
Wild Amaranth.

French, *Amaranthe blette*. German, *gemeiner Amarant*.

EXCLUDED SPECIES.

AMARANTUS RETROFLEXUS. *Lin.*

Has been found in waste ground at Hertford; and at Sawbridge-worth, Herts. I have found it on the mud laid on Battersea fields during their conversion into Battersea Park, but it has no claim to be introduced into the British list, and indeed it would perhaps be better to expunge *A. Blitum*.



INDEX TO LATIN NAMES.

[Species in CAPITALS, Sub-species in small letters, and Synonyms in *italica*.]

	PLATE	PAGE
ACINOS.		
— <i>vulgaris</i> , Pers.....	mlxviii.	32
AJUGA.		
— <i>alpi'na</i> , Auct. Angl.....		78
— <i>alpi'na</i> , Linn. (excluded).....		87
— <i>alpi'na</i> , Sm. (excluded)		87
— CHAMÆPITYS, Linn.....	mx.	80
— <i>Generensis</i> , Linn. (excluded).....		87
— PYRAMIDALIS, Linn.	mlxxxix.	79
— REPTANS, Linn.	mlxxxviii.	77

AMARANTHUS. See AMARANTUS.

AMARANTUS.		
— BLITUM, Linn.	mlxxvii.	184
— <i>retroflexus</i> , Linn. (excluded)		185

ANAGALLIS.		
— ARVEN'SIS, Linn. ...	mexlvi. mexlvii.	150
— <i>arvensis</i> , Sm.		mexlvi. 150
— <i>carulea</i> , Sm.		mexlvii. 151
— <i>plumifera</i> , Lam.		mexlvi. 150
— TENELLA, Linn.		mexlviii. 162

ANCHUSA.		
— ARVEN'SIS, M. Bieb.		mexi. 109
— OFFICINALIS, Linn.....		mexii. 110
— SEMPERVIRENS, Linn.		mexiii. 111

ARMERIA.		
— <i>maritima</i> , Willd.		melii. 158
— PLANTAGINEA, Willd.....		meliv. 159
— <i>subulosa</i> , Jord.		meliv. 159
— <i>vulgaris</i> -plantaginea (?)		melv. 159
— VULGARIS, Benth.		melii. 158
		meliii. 158
— <i>vulgaris</i> , var. <i>pubescens</i> , Reich. fil. (?)		meliii. 158

ASPERUGO.		
— PROCUMBENS, Linn.....		mexx. 120

	PLATE	PAGE
BALLOTA.		
— <i>fœtida</i> , Lam.	mlxv.	52
— NIGRA, Linn.	mlxv. mlxvi.	52
— <i>ruderalis</i> , Svensk. Bot.....	mlxvi.	52

BETONICA.		
— <i>officinalis</i> , Linn.	mlxvii.	54

BORAGO.		
— OFFICINALIS, Linn.	mexiv.	112

BRUNELLA. See PRUNELLA.

CALAMINTHA.		
— ACINOS, Clairv.	mlxviii.	32
— <i>ascendens</i> , Jord.	ml. mli.	34
— CLINOPO'DIUM, Spenn.	mlxvii.	31
— MENTHIFOLIA, Host.....	ml. mli.	34
— NEPETA, Clairv.	mlxix.	33
— <i>officinalis</i> , Jord.	mlii.	36
— <i>officinalis</i> , Mönch	ml. mli.	34
— <i>officinalis</i> , <i>ascendens</i> , Reich. fil.	ml. mli.	34
— <i>officinalis</i> , <i>menthifolia</i> , Reich. fil.	ml.	35
— <i>officinalis</i> , <i>vulgaris</i> , Reich. fil.	mlii.	36
— SYLVATICA, Bromf.	mlii.	36

CARYOPHYLLA.		
— <i>sempervirens</i> , Fisch. & Traut.....	mexlii.	111

CATARIA.		
— <i>vulgaris</i> , Mönch	mliv.	38

CENTUNCULUS.		
— MINIMUS, Linn.	mexlix.	153

CLINOPO'DIUM.		
— <i>vulgaris</i> , Linn.	mlxvii.	31

CORRIGIOLA.		
— LITTORALIS, Linn. ...	mlxx.	177

CYC'LAMEN.

	PLATE	PAGE
— <i>Europæum</i> , Sm ...	mexxxvi.	mexxxvii.
		mexxxviii. 140
— <i>Europæum</i> , Willd. (excluded)		156
— <i>ficariafolium</i> , Reich.	mexxxviii.	140
— <i>hederæfolium</i> , Reich.	mexxxvi.	140
		mexxxvii. 140
— HED'ERIFO'LIIUM, Willd.	mexxxvi.	140
		mexxxvii. mexxxviii. 140
— <i>Neapolitanum</i> , Ten.	mexxxvi.	140
		mexxxvii. mexxxviii.

CYNOGLOS'SUM.

— OFFICINA'LE, Linn.	mexviii.	118
— MONTANUM, Lam.	mexix.	119
— <i>sylvaticum</i> , Hünke	mexix.	119

ECHINOSPERMUM.

— <i>deflexum</i> , Lehm. (excluded)	122
— <i>Lappula</i> , Lehm. (excluded)	121

E'CHIUM.

— <i>Italicum</i> , Auct. Angl.	89
— PLANTAGINEUM, Linn.	mexvi. 89
— <i>violaceum</i> , Koch.	mexvi. 89
— VULGARE, Linn.	mexv. 88

GALEOB'DOLON.

— <i>luteum</i> , Huds.	mlxxxvii.	76
— <i>luteum</i> , Reich.		77
— <i>montanum</i> , Reich.	mlxxxvii.	77

GALEOP'SIS.

— angustifolia, Ehrh.	mlxxiv.	62
— angustifolia, Reich. ....	.....	62
— arvalica, Jord.	mlxxix.	63
— bifida, Bönn.	mlxxix.	67
— canescens, Schultz .....	.....	63
— cannabina, Willd.	mlxxvii.	65
— dubia, Leers	mlxxvi.	64
— eu-Tet'rahit	mlxxviii. mlxxix.	66
— Galeobdolon, Linn.	mlxxxvii.	76
— intermedia, Vill.	mlxxv.	63
— Lad'anum, Auct. Angl.	mlxxiv.	62
— Lad'anum, Guss.	mlxxv.	63
— LAD'ANUM, Linn.	mlxxiv. mlxxv.	62
— OCHROLEUCA, Lam.	mlxxvi.	64
— speciosa, Mill.	mlxxvii.	65
— Tet'rahit, Auct. plur.	mlxxviii.	66
	mlxxix.	66
— Tet'rahit, Koch.	mlxxviii.	66
— TETRAHIT, Linn.	mlxxvii.	65
	mlxxviii. mlxxix.	65
— Tet'rahit, var. grandiflora, Benth.	mlxxvii.	65
— versicolor, Curt.	mlxxvii.	65
— villosa, Huds.	mlxxvi.	64

GLAUX.

— MARITIMA, Linn.	mcI.	154
------------------------	------	-----

GLECH'OMA.

— <i>hedera'cea</i> , Linn.	mlv.	40
— <i>hirsu'ta</i> , Walds. & Kit.		40

HERNIA'RIA.

— CILIA'TA, Bab.....	melxxii.	179
— GLA'BRA, Linn.	melxxi.	178
— hirsu'ta, Linn. (excluded)		183

HOTTO'NIA.

— PALUSTRIS, Linn.	mexxviii.	130
-------------------------	-----------	-----

HYSSO'PUS.

— <i>vulgaris</i> , Linn. (excluded)	86
--	----

ILLEC'EBRUM

— VERTICILLA'TUM, Linn.	melxxiii.
------------------------------	-----------

LA'MIUM.

— ALBUM, Linn.	mlxxxvi.	74
— <i>album</i> , var. Poll.	mlxxxv.	73
— AMPLEXICAULE, Linn.	mlxxxi.	69
— <i>amplexicaule</i> , var. Benth.	mlxxxii.	70
— <i>confer'tum</i> , Fries	mlxxxiii.	71
— GALEOB'DOLON, Crantz.	mlxxxvii.	76
— <i>hirsutum</i> , Lam.	mlxxxv.	73
— <i>hybridum</i> , Vill.	mlxxxiii.	71
— INCISUM, Willd.	mlxxxiii.	71
— INTERMEDIUM, Fries	mlxxxii.	70
— MACULA'TUM, Linn.	mlxxxv.	73
— PURPUREUM, Linn.	mlxxxiv.	72
— <i>rubrum</i> , Wallr.	mlxxxv.	73
— <i>rugosum</i> , Ait.	mlxxxv.	73

LEONU'RUS.

— CARDIACA, Linn.	mlxxx.	68
------------------------	--------	----

LITHOSPERMUM.

— ARVEN'SE, Linn.	mcii.	96
— <i>maritimum</i> , Lehm.	mxcix.	93
— OFFICINA'LE, Linn.	mcI.	95
— PURPUREO-CÆRU'LEUM, Linn.	mc.	94

LITTOREL'LA.

— LACUSTRIS, Linn.	mcIxxix.	174
-------------------------	----------	-----

LY'COPUS.

— EUROPE'US, Linn.	mxxix.	2
-------------------------	--------	---

LYCOP'SIS.

— <i>arvensis</i> , Linn.	mcxi.	109
--------------------------------	-------	-----

LYSIMA'CHIA.

— CILIA'TA, Linn.	mcxliii.	147
— NEM'ORUM, Linn.	mcxliv.	149
— NUMMULARIA, Linn.	mcxliv.	148
— <i>punctata</i> , Jacq.	mcxliii.	146

LYSIMACHIA.

	PLATE	PAGE
LYSIMACHIA.		
— PUNCTATA, <i>Linn.</i>	mexlii.	146
— quadriflora, <i>Linn.</i> (excluded).....		156
— THYRSIFLORA, <i>Linn.</i>	mexl	143
— <i>L.</i> , <i>Fl.</i>		146
— VULGARIS, <i>Linn.</i>	mexli.	144
— vulgaris, var. Benth.	mexlii.	101

MARRU'BUM.

— VULGARE, Linn.mlxiv. 51

MELISSA.

— <i>Acinos</i> , Benth.....	maxlvi.	32
— <i>Nep'tea</i> , Linn.	maxlix.	33
— OFFICINABILIS, Linn.	mliii.	37

MELITTIS.

— <i>grandiflora</i> , Sm.	mlxiii.	50
— MELISSOPHYLLUM, Linn.	mlxii.	
	mlxiii.	49
— <i>Melissophyllum</i> , Sm.	mlxii.	50

MENTHA.

— <i>acutifolia</i> , Sm.	mxix.	16
— <i>agrestis</i> , Solo	mxl.	21
— <i>Allianii</i> , Boreau	22	
— ALOPECUROIDES, Hull .....mxxi.		
— <i>aquat'ica</i> , var. α , Benth.	mxix.	18
— <i>aquat'ica</i> , var. β , Benth.	mxvi.	11
— <i>aquat'ica</i> , var. Solo	mxix.	13
— <i>aquat'ica</i> , var. <i>crisp</i> a, Benth.....	mxviii.	12
— <i>aquat'ica</i> , var. <i>glabrata</i> , Benth.....	mxix.	12
— ARVEN'SIS, Linn.	mxviii.	
	mxix. mxl.	21
— arven'sis, var. γ , Hook. & Arn.		
	mxvii.	19
— arven'sis, var. ϵ , Benth.	mxviii.	21
— arven'sis, var. ζ , Benth.	mxvii.	19
— arven'sis, var. <i>rubra</i> , Benth.	mxiii.	16
— arven'sis, var. <i>sativa</i> , Benth.....	mxix.	
	mxii.	15
— <i>Cardiaca</i> , Baker .....mxxiv. mxxv.		17
— <i>Cardiaca</i> , var. 1, Baker.....	mxv.	18
— <i>Cardiaca</i> , var. 2, Baker.....	mxiv.	17
— CITRATA, Ehrh.	mxix.	12
— CRISPA, Linn.....	mxviii.	12
— <i>dulcisima</i> , Dum.	mxl.	5
— <i>galeata</i> , Pres.		20
— GENTILIS, Linn.	mxvii.	19
— <i>gentilis</i> , Solo	mxv.	18
— <i>gentilis</i> , var. 1, 2, and 3, Baker.....		
	mxvii.	19
— <i>gentilis</i> , var. 4, Baker	mxvi.	18
— GRACILIS, Sm.	mxiv. mxxv.	17
— <i>gracilis</i> , Solo	mxv.	17
— <i>gracilis</i> , var. α , Sm.....	mxiv.	17
— <i>gracilis</i> , var. β , Sm.	mxv.	18
— <i>gracilis</i> , var. γ , Sm.	mxv.	18
— <i>hircina</i> , Hull	mxv.	18

MENT'ILA.

MINTU'IA.		PLATE	PAGE
—	HIRSUTA, Linn.....	maxx.	13
—	<i>hirsu'ta</i> , var. Sm.	maxxi. maxxii.	15
—	<i>hirsu'ta</i> , var. a, Sm.	maxvi.	13
—	<i>hirsu'ta</i> , var. B, Sm.	maxxi.	14
—	<i>mollis'sima</i> , Borkh.	6	11
—	<i>nemorosa</i> , Willd.....	6	6
—	<i>nepetoides</i> , Laj.	maxvi. maxxvii.	10
—	<i>nummularia</i> , Schreb.....	maxxi.	14
—	<i>odora'ta</i> , Reich.	14	14
—	<i>odora'ta</i> , Solo .....maxxi.	12	12
—	<i>officina'lis</i> , Hull .....maxxiv.	9	9
—	<i>paludo'sa</i> , Solo.....maxxii.	15	15
—	<i>palu'tris</i> , Solo .....maxxi.	11	11
—	<i>parietariifo'lia</i> , Beck.	22	22
—	<i>Paulia'na</i> , Schultz.....maxxvii.	20	20
—	PIPERITA, Huds. ....maxxiv. maxxv.	9	9
—	<i>piperi'ta</i> , Hull .....maxxv.	9	9
—	<i>piperi'ta</i> , var. γ, Sm. ....maxxvii.	11	11
—	<i>piperi'ta</i> , var. <i>crispa</i> , Koch ..maxxviii.	12	12
—	<i>piperi'ta</i> , officina'lis, Solo .....maxxiv.	9	9
—	<i>piperi'ta</i> , <i>sylves'tris</i> , Solo.....maxxvii.	11	11
—	<i>piperi'ta</i> , <i>vulgaris</i> , Solo.....maxv.	9	9
—	<i>pratensis</i> , Benth. ....maxxiv. maxxv.	17	17
—	PRATENSIS, Solo .....maxxvi.	18	18
—	<i>pru'tea</i> , Solo .....maxxi.	22	22
—	PULEGIUM, Linn. ....mxli. mxlii.	23	23
—	PUBESCENS, Willd...maxxi. maxxvii.	10	10
—	<i>rieda'lis</i> , Solo .....maxxi.	15	15
—	ROTUNDIFOLIA, Linn. ....maxx.	4	4
—	<i>rotundifo'lia</i> , Solo .....maxxi.	5	5
—	<i>rotundifo'lia</i> , var. <i>veluti'na</i> , Bab.	maxxi.	5
—	<i>ru'bra</i> , Fries .....maxxv.	18	18
—	RU'BRA, Sm. ....maxxiii.	16	16
—	<i>ru'bra</i> , Solo .....maxxvii.	19	19
—	<i>sati'va</i> , Fries .....maxxiii.	16	16
—	SATIVA, Linn.....maxxi. maxxii.	15	15
—	<i>sati'va</i> , var. γ, Bab. ....maxxvii.	19	19
—	<i>sati'va</i> , var. <i>glabra</i> , Koch.....maxxiii.	16	16
—	<i>sati'va</i> , var. <i>ru'bra</i> , Bab.....maxxiii.	16	16
—	<i>subspica'ta</i> , Weihe .....maxxiii.	15	15
—	SYLVESTRIS, Linn. ....maxxii.	6	6
—	<i>sylves'tris</i> , Solo .....maxx.	4	4
—	<i>sylves'tris</i> , var. a, Sm. ....maxxii.	6	6
—	<i>sylves'tris</i> , var. B, Sm. ....maxxii.	6	6
—	<i>sylves'tris</i> , var. δ, Sm. ....maxxi.	5	5
—	<i>sylves'tris</i> , var. <i>alopeuroi'des</i> , Baker ...	maxxi.	5
—	<i>sylves'tris</i> , var. <i>glabra</i> , Koch...maxxiii.	7	7
—	<i>sylves'tris</i> , var. <i>veluti'na</i> , Bab. ....maxxi.	5	5
—	<i>villo'sa</i> , <i>pru'ma</i> , Solo .....maxxii.	6	6
—	<i>villo'sa</i> , <i>secun'da</i> , Solo .....maxxii.	6	6
—	VIRIDIS, Linn. ....maxxiii.	7	7
—	<i>Virga'ni'na</i> , Schultz.....	20	20

MERTEN'SIA.

— MARITIMA, <i>Don.</i>	mxci.	98
— virginica, <i>Don.</i> (excluded)		121

MYOSO'TIS.

	PLATE	PAGE
— ALPES'TRIS, <i>Schmidt</i>	mevi.	102
— ARVEN'SIS, <i>Hoffm.</i>	meviii.	105
— <i>arven'sis</i> , Sm.	meix.	106
— <i>arven'sis</i> , var. <i>dumetorum</i> , Crep. ....	.....	105
— CÆSPITO'SA, <i>Schultz</i>	meiii.	98
— COLLI'NA, <i>Reich.</i>	meix.	106
— <i>his'pida</i> , Schlecht.	meix.	106
— <i>interme'dia</i> , Link	meviii.	105
— <i>lingul'da</i> , Lehm.	meiii.	98
— <i>memor'sa</i> , Fl. Tarn.....	.....	105
— PALUSTRIS, <i>With.</i>	meiv.	99
— RE'PENS, <i>Don.</i>	mev.	101
— <i>rupic'ola</i> , Sm.	mevi.	102
— <i>strigulo'sa</i> , Reich. ....	.....	99
— <i>sud'aeolens</i> , Waldst. & Kit.	mevi.	102
— SYLVATICA, <i>Ehrh.</i>	mevii.	103
— <i>sylvat'ica</i> , var. <i>alpes'tris</i> , Koch ..	mevi.	102
— <i>sylvat'ica</i> , var. <i>rupic'ola</i> , Fries ..	mevi.	102
— VERSIC'OLOR, <i>Reich.</i>	mex.	107

NAUMBUR'GIA.

— <i>guttat'a</i> , Mönch	mexl.	143
— <i>thyrsiflora</i> , Duby	mexl.	143

NEP'ETA.

— CATA'RIA, <i>Linn.</i>	mliv.	38
— GLECH'OMA, <i>Benth.</i>	mlv.	40

ORIG'ANUM.

— <i>Cret'icum</i> , var. β , <i>Linn.</i>	mxlvi.	29
— <i>megastachyum</i> , Link.....	mxlvi.	29
— <i>Oni'tes</i> , <i>Linn.</i> (excluded) .....	.....	86
— <i>vi'rens</i> , Link (excluded) .....	.....	86
— <i>vulga're</i> , Link.....	mxlv.	29
— VULGA'RE, <i>Linn.</i>	mxlv.	29
— <i>vulga're</i> , var. <i>megastachyum</i> , Koch ...	mxlvi.	29

PINGUIC'ULA.

— ALPI'NA, <i>Linn.</i>	mexxiii.	124
— GRANDIFLO'RA, <i>Lam.</i>	mexxii.	124
— LUSITAN'ICA, <i>Linn.</i>	mexxv.	125
— VULGA'RIS, <i>Linn.</i>	mexxi.	123
— <i>vulga'ris</i> , var. <i>Benth.</i>	mexxii.	124

PLANTA'GO.

— alpi'na, <i>Linn.</i> (excluded) .....	.....	175
— arena'ria, <i>Linn.</i> (excluded) .....	.....	175
— argen'tea, <i>Linn.</i> (excluded) .....	.....	175
— CORON'OPUS, <i>Linn.</i>	mclxviii.	173
— <i>interme'dia</i> , Gilb.....	.....	167
— LANCEOLA'TA, <i>Linn.</i> mclxiv. mclxv.	.....	170
— <i>ma'jor</i> , Gren. & Godr.	mclxii.	167
— MA'JOR, <i>Linn.</i>	mclxii.	167
— MARITIMA, <i>Linn.</i>	mclxvi. mclxvii.	172
— ME'DIA, <i>Linn.</i>	mclxiii.	169
— Psyl'lum, <i>Linn.</i> (excluded) .....	.....	175

PLANTA'GO.

— Serpenti'na, <i>Vill.</i> (excluded) .....	.....	175
— Timbal'i, <i>Jord.</i>	mclxv.	171

PRIM'ULA.

— <i>acaul'is</i> , Jacq.	mexxix.	131
— <i>brevistyla</i> , D.C. ....	.....	136
— <i>el'd'tior</i> , Auct. Angl.	mexxxii.	136
— <i>el'd'tior</i> , Jacq.	mexxxi.	135
— FARINO'SA, <i>Linn.</i>	mexxxiv.	138
— <i>farino'sa</i> , var. <i>Duby</i>	mexxxiv.	138
— <i>grandiflo'ra</i> , <i>Linn.</i>	mexxix.	131
— <i>intrica'ta</i> , Gren. & Godr.....	.....	136
— OFFICINA'LIS, <i>Jacq.</i>	mexxxx.	133
— <i>officina'li-vulga'ris</i> ...mexxxii. mclxxiii.	.....	136
— SCOTICA, <i>Hook.</i>	mexxxv.	138
— <i>sylves'tris</i> , Scop.	mexxxix.	131
— <i>variabil'is</i> , Goupi.	mexxxii.	136
— <i>ve'ris</i> , Huds.	mexxxx.	133
— <i>ve'ris</i> , var. α , <i>Benth.</i>	mexxix.	131
— <i>ve'ris</i> , var. β , <i>Benth.</i>	mexxxx.	133
— <i>ve'ris</i> , <i>acaul'is</i> , <i>Linn.</i>	mexxxi.	131
— <i>ve'ris</i> , <i>el'd'tior</i> , <i>Linn.</i>	mexxxi.	135
— <i>ve'ris</i> , <i>officina'lis</i> , <i>Linn.</i>	mexxxx.	133
— VULGA'RIS, <i>Huds.</i>	mexxxx.	131
— <i>vulga'ris</i> β , <i>caulescens</i> , Bab....mexxxii.	.....	136
— <i>vulga'ris</i> β , <i>variabil'is</i> , Bab....mexxxii.	.....	136
— <i>Thomasi'nii</i> , Gren. & Godr.....	.....	136

PRUNEL'LA.

— VULGA'RIS, <i>Linn.</i>	mlix.	46
---------------------------------	-------	----

PULEG'IUM.

— <i>vulga're</i> , <i>Mill.</i>	mxli. mxlii.	23
--	--------------	----

PULMONA'RIA.

— ANGUSTIFOLIA, <i>Linn.</i>	mxcvii.	91
— <i>azu'rea</i> , Bess.	mxcvii.	91
— <i>marit'ima</i> , <i>Linn.</i>	mxcix.	93
— OFFICINA'LIS, <i>Linn.</i>	mxcviii.	92

SAL'VIA.

— CLANDESTINA, <i>Linn.</i> (?).....	mlvii.	43
— <i>horminol'des</i> , Pour.....	mlvii.	43
— <i>multif'ida</i> , Sibth. & Sm.....	mlvii.	43
— <i>pallidiflo'ra</i> , St. Amans.....	mlvii.	43
— <i>pra'cox</i> , Savi	mlvii.	43
— PRATEN'SIS, <i>Linn.</i>	mlviii.	44
— VERBENA'CA, <i>Linn.</i>	mlvi.	42
— <i>verbena'ca</i> , var. <i>multif'ida</i> , Vis....	mlvii.	43
— <i>verbena'ca</i> , var. <i>sinuata</i> , Vis.	mlvi.	42

SAM'OLUS.

— VALERAN'DI, <i>Linn.</i>	mcli.	155
----------------------------------	-------	-----

SCLERAN'THUS.

— AN'NUUS, <i>Linn.</i>	mclxxiv. mclxxv.	181
-------------------------------	------------------	-----

SCLERANTHUS.

— <i>linifolia</i> , Reuter	melxxv.	182
— PERENNIS, Linn.	melxxvi.	182

SCORODONIA.

— <i>heteromalla</i> , Münch	mcxciii.	85
------------------------------------	----------	----

SCUTELLARIA.

— GALERICULATA, Linn.	mlx.	47
— hastifolia, Linn. (excluded)	86	
— MINOR, Linn.	mlxi.	48

STACHYS.

— <i>ambigua</i> , Sm.	mlxx.	58
— ANNUA, Linn.	mlxxiii.	61
— ARVENSIS, Linn.	mlxxii.	60
— BETONICA, Benth.	mlxvii.	54
— GERMANICA, Linn. ...	mlxviii.	56
— lanata, Linn. (excluded)	86	
— palustris-sylvatica, Schiede	mlxx.	58
— PALUSTRIS, Linn.	mlxix.	57
— palustris, var. <i>ambigua</i> , Bab.	mlxx.	58
— <i>palustris</i> , var. <i>hybrida</i> , Benth.	mlxx.	58
— SYLVATICA, Linn.	mlxxi.	59
— Sylvatici-palustris, Wirtg.	mlxx.	58

STATICE.

— <i>Armeria</i> , Linn.	melii. meliii.	157
— <i>Armeria</i> , Sm.	melii.	157
— <i>auriculifolia</i> , Benth.	melix. melx.	163
— Bahusien'sis, Fries.	melviii.	162
— Behen, Drejer	melvi. melvii.	161
— bellidifolia, Gouan	melxi.	165
— BINERVOsa, G. E. Sm.	melix.	163
— <i>Cuscuta</i> , Willd.	melxi.	165
— <i>Dodartii</i> , Bab. (olim.)	164	
— <i>Dodartii</i> , Gir.	melx.	164
— <i>elongata</i> , var. <i>pubescens</i> , Koch (?) ..	meliii.	157
— <i>Limonium</i> , Gren. & Godr.	melvi.	161
— LIMONIUM, Linn.	melvi. melvii.	160
— <i>Limonium</i> , Reich.	melvii.	161
— <i>Limonium</i> , Sm.	melvi. melvii.	161
— <i>Limonium</i> , var. Benth.	melviii.	162
— <i>Limonium</i> , var. β , Sm.	melix.	161
— <i>Limonium</i> , var. Behen, Boiss	melvi.	161
— <i>Limonium</i> , var. <i>genuina</i> , Boiss	melvii.	161
— <i>Limonium</i> , var. <i>Seantica</i> , Fries.	melvi. melvii.	161
— occidentalis, Lloyd	melix.	164
— <i>plantaginea</i> , All.	melix.	160
— <i>Pseudo-Limonium</i> , Reich.	melvi.	164

STATICE.

— <i>varifolia</i> , Drejer	melviii.	162
— <i>reticulata</i> , M. Bieb.	melxi.	165
— <i>serotina</i> , Gren. & Godr. (in part)	melvii.	161
— <i>spathulata</i> , Hook.	melix.	164

STEENHAMMARIA.

— <i>maritima</i> , Fries	mcxcix.	93
---------------------------------	---------	----

STEENHAMMERA.

— <i>maritima</i> , Reich.	mcxcix.	93
---------------------------------	---------	----

SYMPHYTUM.

— <i>asperifolium</i> , M. Bieb. (excluded)	121	
— OFFICINALE, Linn.	mcxv. mcxvi.	114
— Orientale, Linn. (excluded)	121	
— <i>patens</i> , Sibth.	mcxvi.	115
— <i>Tauricum</i> , Willd. (excluded)	121	
— TUBEROSUM, Linn.	mcxvii.	116

TEUCRIUM.

— BOTRYS, Linn.	mcxciv.	81
— CHAMÆDRYS, Linn.	mcxciv.	81
— <i>scordioïdes</i> , Bab.	83	
— <i>scordioïdes</i> , Schreb. (excluded)	87	
— SCORDIUM, Linn.	mcxcii.	82
— SCORODONIA, Linn.	mcxciii.	85
— <i>regium</i> , Schreb. (excluded)	87	

TRIENTALIS.

— EUROPEA, Linn.	mcxxxix.	142
-----------------------	----------	-----

THYMUS.

— <i>Acinos</i> , Linn.	mcxlviii.	32
— <i>Calamintha</i> , Sm.	ml. mli.	34
— <i>Chamædrys</i> , Fries.	mcxliv.	27
— eu-Serpyllum	mcxliii.	26
— <i>Nepeta</i> , Sm.	mcxlix.	33
— <i>Serpyllum</i> , Fries.	mcxliii.	26
— SERPYLLUM, Linn.	mcxliii. mcxliv.	25
— <i>Serpyllum</i> , var. α , Hook. & Arn.	mcxliii.	26
— <i>Serpyllum</i> , var. β , Hook. & Arn.	mcxliv.	27
— <i>Serpyllum</i> , var. <i>Chamædrys</i> , Koch. ...	mcxliv.	27

UTRICULARIA.

— INTERMEDIA, Hayne	mcxxvii.	128
— <i>major</i> , Schmelde.	mcxxv. (bis.)	127
— MINOR, Linn.	mcxxvi.	128
— NEGLECTA, Lehm.	mcxxv. (bis.)	127
— VULGARIS, Linn.	mcxxv.	126

INDEX TO ENGLISH NAMES.

	PLATE	PAGE
Alkanet, Common	mexlii.	110
—— Evergreen	mexliii.	112
Alpine Butterwort	mexxliii.	125
—— Forget-me-not	mexvi.	103
Amaranth, Wild.....	mclxxvii.	185
Annual Woundwort, Pale	mlxxxiii.	61
Archangel, Yellow.....	mlxxxvii.	77
Balm, Bastard.....	mlxii. mlxliii.	50
—— Common.....	mlliii.	38
Basil Thyme.....	mlxlviii.	32
—— Wild.....	mlxlvii.	32
Bastard Balm	mlxii. mlxliii.	50
—— Pimpernel	mexlix.	154
Bergamot Mint	mxxix.	13
Betony, Wood	mlxvii.	54
Birdseye Primrose	mexxxiv.	138
—— Scottish	mexxxv.	138
Black Horehound.....	mlxv. mlxvi.	53
—— Saltwort	mcl.	154
Bladderwort, Greater	mexxxv.	127
—— Intermediate	mexxxvii.	129
—— Lehman's	mexxxv. (bis.)	127
—— Lesser	mexxxvi.	128
Blue Pimpernel	mclxlvii.	152
Blunt-spiked Mint	mxxvi. mxxvii.	11
Bog Pimpernel	mclxlviii.	153
Borage, Common	mexiv.	13
Broad-leaved House Mint	mxxi.	6
Brook-weed	mcli.	156
Buck's-horn Plantain.....	mclxlviii.	174
Bugle, Common	mlxxxviii.	78
—— Pyramidal	mlxxxix.	79
Bugloss, Common Viper's	mxcv.	89
—— Purple Viper's.....	mxcvi.	90
—— Small	mexi.	109
Bushy Red Mint.....	mxxxvii.	20
Butterwort, Alpine	mexxliii.	125
—— Common.....	mexxi.	123
—— Large-flowered.....	mexxii.	124
—— Pale	mexxiv.	125
Calamint, Common	ml. mli.	36
—— Lesser.....	malix.	34
—— Wood	mlii.	36
Cardiac Mint.....	mxxxv.	18
Cat Mint	mliv.	39

	PLATE	PAGE
Chickweed, Winter-green	mexxxxix.	142
Ciliated Loosestrife	mclxlii.	148
—— Rupturewort	mclxxii.	180
Clary, Meadow	mlviii.	45
—— Small-flowered	mlvii.	44
—— Wild English.....	mlvi.	43
Comfrey, Common	mexv. mexvi.	116
—— Tuberos	mexvii.	117
Corn Gromwell	mecii.	97
—— Mint.....	mxxxviii. to mxl.	21
—— Woundwort	mlxxii.	60
Cowslip	mexxx.	134
—— Oxlip.....	mexxxiii.	137
Creeping Jenny.....	mclxiv.	149
—— Water Forget-me-not	mexv.	102
—— Wild Thyme	mlliii.	26
Curled Mint.....	mxxviii.	12
Cut-leaved Dead-nettle	mlxxxiii.	72
—— Germander	mxei.	82
Cyclamen, Ivy-leaved	mexxxvi. to mexxxviii.	141
Dead-nettle, Cut-leaved.....	mlxxxiii.	72
—— Henbit.....	mlxxxi.	70
—— Intermediate	mlxxxii.	71
—— Red	mlxxxiv.	73
—— Spotted	mlxxxv.	74
—— White.....	mlxxxvi.	75
Downy Hemp-nettle	mlxxvi.	65
—— Woundwort	mlxviii.	57
Dwarf Forget-me-not	mexix.	107
Evergreen Alkanet	mexliii.	112
English Clary, Wild.....	mlvi.	43
Field Forget-me-not	mexviii.	106
Forget-me-not, Alpine.....	mexvi.	103
—— Creeping Water	mexv.	102
—— Dwarf	mexix.	107
—— Field	mexviii.	106
—— Great Water	mexiv.	100
—— Tufted Water	mecii.	98
—— Wood	mexvii.	104
—— Yellow and Blue.....	mex.	108
Germander, Cut-leaved	mxei.	82
—— Wall	mxciv.	84

	PLATE	PAGE		PLATE	PAGE
Germanier, Water.....	mcxii.	83	Loosestrife, Common	mcxii.	145
——— Wood.....	mcxiii.	85	——— Punctate	mcxiii.	147
German Madwort	mcxxx.	121	——— Tatted	mcxiii.	144
Gipsy Wort	mcxix.	2	Lungwort, Common	mcxviii.	94
Glabrous Rupturewort	mcxxi.	178	——— Narrow-leaved	mcxviii.	92
Greater Bladderwort.....	mcxxv.	127			
——— Plantain	mcxlii.	168	Madwort, German	mcxxx.	120
Great Sea Lavender	mcxvi. mcxvii.	161	Marjoram, Common.....	mcxlv.	30
——— Water Forget-me-not	mcxiv.	100	Marsh Whorled Mint.....	mcxxi. mcxxii.	16
Green-leaved Hound's Tongue.....	mcxix.	120	——— Woundwort.....	mcxxx.	57
Gromwell, Common	mc.	96	Matted Sea Lavender.....	mcxi.	146
——— Corn.....	mcii.	97	Meadow Cherry	mcxvii.	45
——— Purple	mc.	95	——— Mint	mcxxvi.	19
Ground Ivy	mcv.	41	Mint, Bergamot	mcxxx.	13
——— Pine.....	mc.	80	——— Blunt-spined	mcxxvi. mcxxvii.	11
			——— Broad-leaved Horse	mcxxi.	6
Hairy Water Mint.....	mcxxx.	14	——— Cardiac	mcxxv.	18
Hedge Woundwort	mlxx. mlxxi.	59-60	——— Common Horse.....	mcxxii.	7
Hemp-nettle, Common	mlxxviii.	67	——— Corn	mcxxviii. —ml.	21
——— Downy	mlxxvi.	65	——— Curled	mcxxviii.	12
——— Intermediate	mlxxv.	64	——— Hairy Water.....	mcxxx.	14
——— Large-flowered.....	mlxxvii.	66	——— Marsh Whorled.....	mcxxi. mcxxii.	16
——— Narrow-leaved	mlxxv.	63	——— Meadow	mcxxvi.	19
Henbit Dead-nettle	mlxxxi.	70	——— Round-leaved	mcx.	4
Hoary Plantain.....	mlxxiii.	170	——— Slender	mcxxiv.	17
Horehound, Black	mlxv. mlxvi.	53	——— Spear	mcxxiii.	8
——— Water	mcxix.	3	——— Tall Red	mcxxvii.	17
——— White.....	mlxiv.	51	Moneywort	mcxlv.	149
Horse Mint, Broad-leaved	mcxxv.	6	Motherwort	mlxxx.	68
——— Common	mcxxii.	7			
Hound's Tongue, Common	mcxviii.	119	Narrow-leaved Hemp-nettle	mlxxiv.	63
——— Green-leaved.....	mcxix.	120	——— Lungwort	mcxvii.	92
			Nettle, Common Hemp	mlxxviii. mlxxix.	65
Illecebrum, Whorled	mcxliiii.	181	——— Cat-leaved Dead	mlxxxiii.	72
Intermediate Bladderwort	mcxxvii.	129	——— Downy Hemp.....	mlxxvii.	65
——— Dead-nettle	mlxxxii.	71	——— Henbit Dead.....	mlxxxi.	70
——— Hemp-nettle	mlxxv.	64	——— Intermediate Dead.....	mlxxxii.	71
Ivy, Ground	mcv.	41	——— Intermediate Hemp.....	mlxxiv.	64
Ivy-leaved Cyclamen.....	mcxxvii. to mcxxviii.	141	——— Large-flowered Hemp	mlxxvii.	65
			——— Narrow-leaved Hemp	mlxxv.	63
Jacquin's Oxlip	mcxxxi.	135	——— Red Dead	mlxxxiv.	73
			——— Spotted Dead	mlxxxv.	74
			——— White Dead	mlxxxvi.	75
Knawel, Common	mcxxiv.				
——— var β , mcxxv.		182	Oxlip, Common	mcxxxi.	137
——— Perennial.....	mcxxvi.	183	——— Cowslip	mcxxxi.	137
			——— Jacquin's	mcxxxi.	135
Large-flowered Butterwort	mcxxii.	124	Oyster-plant	mcxix.	95
——— Hemp-nettle	mlxxvii.	66			
Larger Wild Thyme	mcxlv.	28	Pale Annual Woundwort.....	mlxxxi.	61
Lavender, Great Sea	mcxvi. mcxvii.	161	——— Butterwort	mcxxv.	125
——— Lesser Sea.....	mcxix.	165	Penny-rayed	mcxli. mcxlii.	24
——— Matted Sea.....	mcxi.	146	Peppermint.....	mcxxiv. var β , mcxxv.	9
——— Remote-flowered Sea	mcxviii.	163	Perennial Knawel	mcxxvi.	183
Lehman's Bladderwort	mcxxv. (det.)	127	Pinappinal, Bastard	mcxxix.	154
Lesser Bladderwort.....	mcxxvi.	128	——— Blue	mcxxv.	152
——— Calamint	mcxix.	34	——— Egg	mcxxv.	153
——— Sea Lavender.....	mcxix. mcx.	145	——— Scarlet	mcxvi. var β , mcxv.	151
——— Skull-cap	mcx.	49	——— Yellow.....	mcxv.	150
Loosestrife, Ciliated.....	mcxli.	148	Pink, Ground.....	mcx.	80

	PLATE	PAGE		PLATE	PAGE
Plantain, Buck's-horn	mclxviii.	174	Thrift, Hybrid	mcliv.	159
— Greater	mclxii.	168	— Plantain-leaved	mcliv.	159
— Hoary	mclxiii.	170	Thyme, Basil	mxlviii.	33
Plantain-leaved Thrift	mcliv.	159	— Creeping Wild	mxliii.	26
— Sea	mclxvi., var. γ , mclxvii.	173	— Larger Wild	mcliv.	28
— Shore-weed	175		Tuberous Comfrey	mcxvii.	117
Primrose, Birdseye	mcxxxiv.	138	Tufted Loosestrife	mcl.	144
— Common	mcxxxix.	132	— Water Forget-me-not	mclii.	98
— Scottish Birdseye	mcxxxv.	139			
Punctate Loosestrife	mclxii.	147	Violet, Water	mcxxviii.	130
Purple Gromwell	mc.	95	Viper's Bugloss, Common	mcxcv.	88
— Viper's Bugloss	mcxvi.	90	— Purple	mcxvi.	90
Pyramidal Bugle	mlxxxix.	79			
			Wall Germander	mcxciv.	84
Red Dead-nettle	mlxxxiv.	73	Water Forget-me not, Creeping	mcv.	102
— Mint, Bushy	mcxxxvii.	20	— Great	100	
— Mint, Tall	mcxxxiii.	17	— Tufted	mcliii.	98
Remote-flowered Sea Lavender	mclviii.	163	Water Germander	mcxcii.	83
Rib-grass, Common	mclxv.	171	— Horehound	mxix.	2
Round-leaved Mint	mcxx.	4	— Mint, Hairy	mcxxx.	14
Rupturewort, Ciliated	mclxxii.	180	— Violet	mcxxviii.	130
— Glabrous	mclxxi.	178	White Dead-nettle	mlxxxvi.	75
			— Horehound	mclxiv.	51
Saltwort, Black	mcl.	154	Whorled Illecebrum	mclxxiii.	181
Sand Strapwort	mclxx.	177	— Mint, Marsh	mcxxxi. mcxxxi.	16
Scarlet Pimpernel	mclxvi. var. β , mclxvii.	151	Wild Basil	mxlvii.	32
Scottish Birdseye Primrose	mcxxxv.	139	— English Clary	mlvi.	43
Skull-cap, Common	mlx.	48	— Thyme, Creeping	mxliii.	26
— Lesser	mlxi.	49	— Thyme, Larger	mxliv.	28
Sea Lavender, Great	mclvi. mclvii.	161	Winter-green, Chickweed	mcxxxix.	142
— Lesser	mclix. mclx.	165	Wood Betony	mlxvii.	54
— Matted	mclxi.	166	— Calamint	mlii.	36
— Remote-flowered	mclvii.	163	— Forget-me-not	mcvii.	104
Sea Plantain	mclxvi., var. γ , mclxviii.	173	— Germander	mcxciii.	85
Self-heal	mlix.	47	Woundwort, Corn	mlxxii.	60
Shore-weed, Plantain	mcl.	175	— Downy	mlxviii.	57
Slender Mint	mcxxxiv.	17	— Hedge	mlxx. mlxxi.	59-60
Small Bugloss	mcxi.	109	— Hybrid	mlxx.	58
Small-flowered Clary	mlvii.	44	— Marsh	mlxix.	57
Spotted Dead-nettle	mlxxxv.	74	— Pale Annual	mlxxiii.	61
Spear Mint	mcxxiii.	8			
Strapwort, Sand	mclxx.	177	Yellow and Blue Forget-me-not	mcx.	108
			— Archangel	mlxxxvii.	77
Tall Red Mint	mcxxxiii.	17	— Pimpernel	mcxlv.	150
Thrift, Common	mclii. mcliii.	158			

ENGLISH BOTANY.

ILLUSTRATIONS.













Mentha alepeuroides. Broad-leaved Horse-mint.



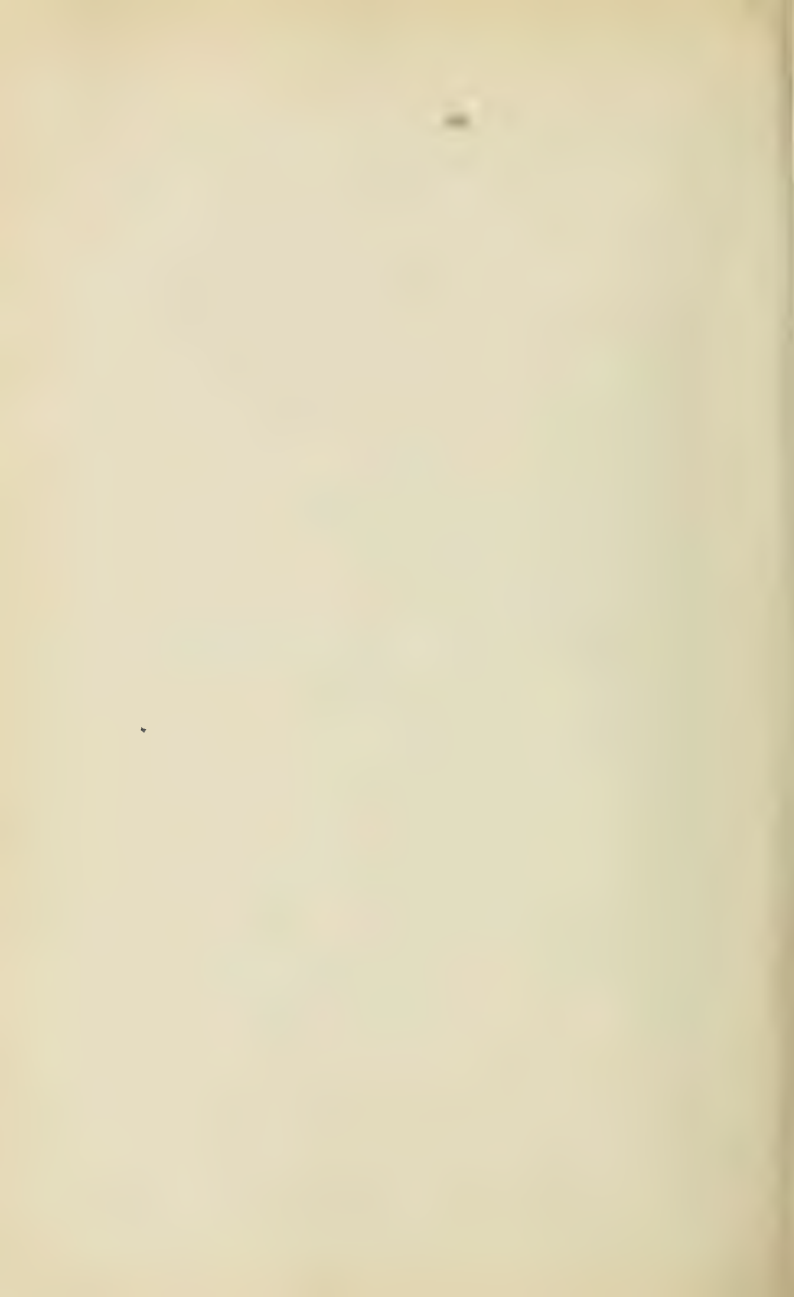






J. H. 2424.

Mentha viridis. Spear-mint.





E. B. 687.

Mentha piperita var. *officinalis*. Garden Pepper-mint.





Mentha piperita var. *vulgaris*. Wild Pepper-mint.



*Mentha pubescens*, var. *genuina*.Blunt-spiked Mint, var. *a*.





Mentha pubescens, var. *hircina*.

Blunt-spiked Mint, var. β .





E. B. S. 2785.

Mentha crispa. Curled Mint.





E. B. 1025.

Mentha citrata. Bergamot Mint.





B. 447.

Mentha hirsuta. Hairy Water Mint.

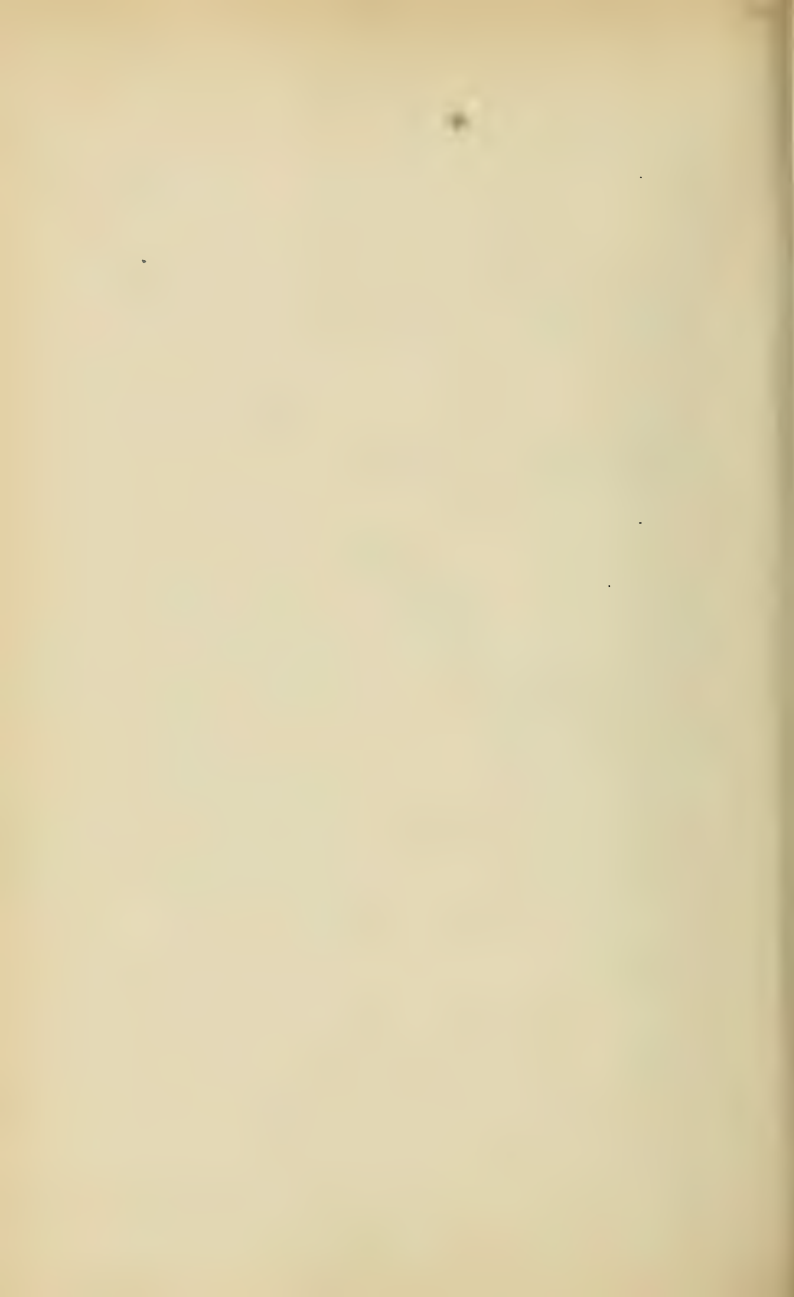




M. B. 294

M. B. 40

Mentha sativa, var. *genuina*.Marsh Whorled Mint, var. *a*.





Mentha sativa, var. *paludosa*.

Marsh Whorled Mint, var. β .





E. D. 1413.

Mentha rubra. Tall Red Mint.





Mentha gracilis, var. *genuina*. Slender Mint.



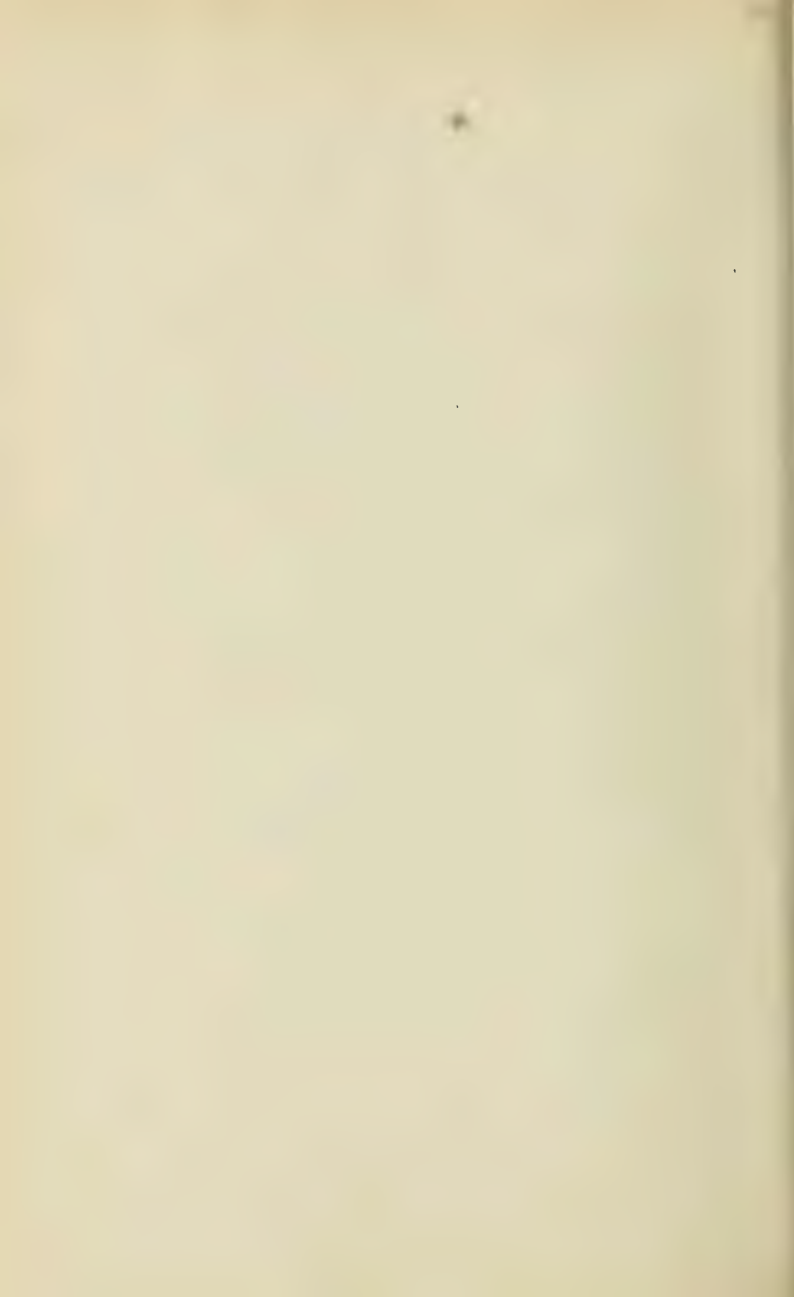


Mentha gracilis, var. *Cardiaca*. Cardiac Mint.





Mentha pratensis. Meadow Mint.





E. D. 2118.

Mentha gentilis. Bushy Red Mint.





E. B. 2119.

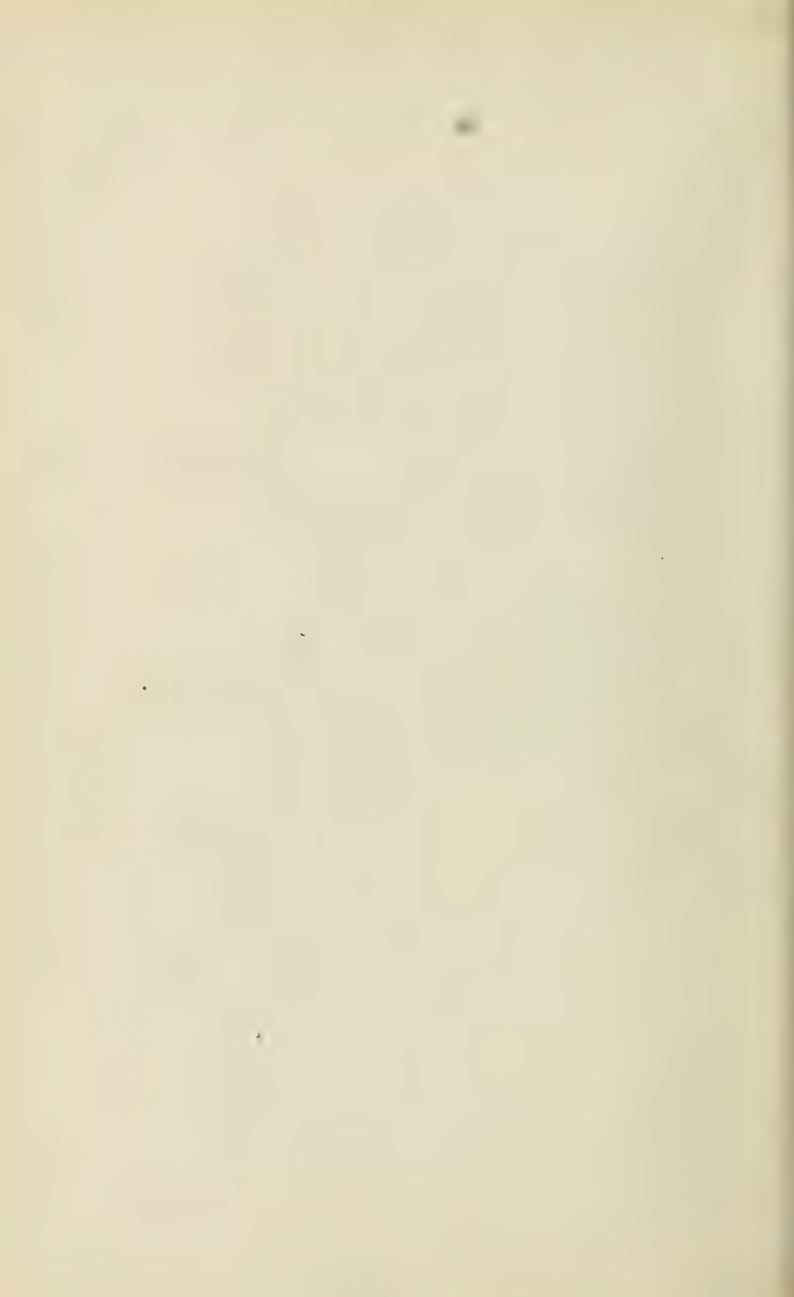
Mentha arvensis, var. *genuina*. Corn Mint, var. *a*.





B. 2120.

Mentha arvensis, var. *agrestis*.Corn Mint, var. γ .





Mentha arvensis, var. *Allionii*.

Corn Mint, var. *c*.





E. B. 1026.

Mentha Pulegium, var. *decumbens*. Penny-royal.





Mentha Pulegium, var. *erecta*. Penny-royal.





E. B. 1514.

Thymus eu-Serpyllum. Creeping Wild Thyme.





. S. 2992.

Thymus Chamædrys. Larger Wild Thyme.





E. D. 1143.

Origanum vulgare, var. *genuinum*.

Common Marjoram, var. *a*.





Origanum vulgare, var. *prismaticum*.

Common Marjoram, var. β .





E. B. 1401.

Calamintha Clinopodium.

Wild Basil.





Calamintha Acinos. Basil Thyme.





E. B. 1414.

Calamintha Nepeta. Lesser Calamint.





E. B. 1676.

Calamintha menthifolia, var. *gennina*. Common Calamint, var. *a*.





Calamintha menthifolia, var. *Briggsii*.

Common Calamint, var. β .





E. B. S. 2897.

Calamintha sylvatica. Wood Calamint.





Melissa officinalis. Common Balm.





E. B. 137.

³ *Nepeta Cataria.* Cat-mint.





E. B. 853.

Nepeta Glechoma. Ground Ivy.





Salvia Verbenaca. Wild English Clary.





Salvia clandestina. Small-flowered Clary.





E. D. 153.

Salvia pratensis. Meadow Clary.



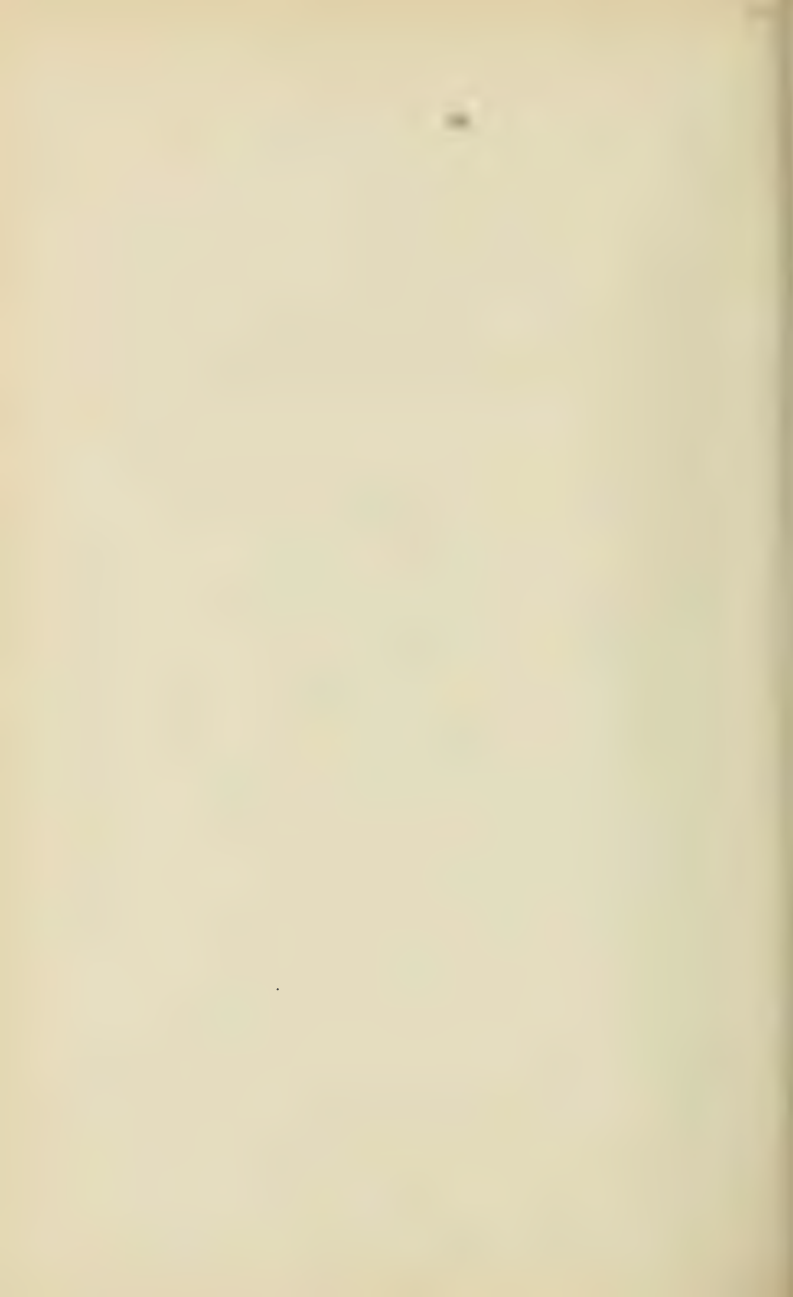


E. B. 961.

Prunella vulgaris. Self-heal.













B. 577.

Melittis Melissophyllum. Bastard Balm.





E. B. 636.

Melittis Melissophyllum (grandiflora). Bastard Balm.





E. B. 410.

Marrubium vulgare. White Horehound.





E. B. 46.

Ballota nigra, var. *foetida*.

Black Horehound, var. *a*.





Ballota nigra, var. *ruderalis*.

Black Horehound, var. β .





Stachys Betonica. Wood Betony.





E. B. 829.

Stachys Germanica. Downy Woundwort.





E. B. 1675.

Stachys palustris. Marsh Woundwort.





B. 2080.

Stachys sylvatici-palustris.

Hybrid between Hedge and Marsh Woundwort.





E. B. 416

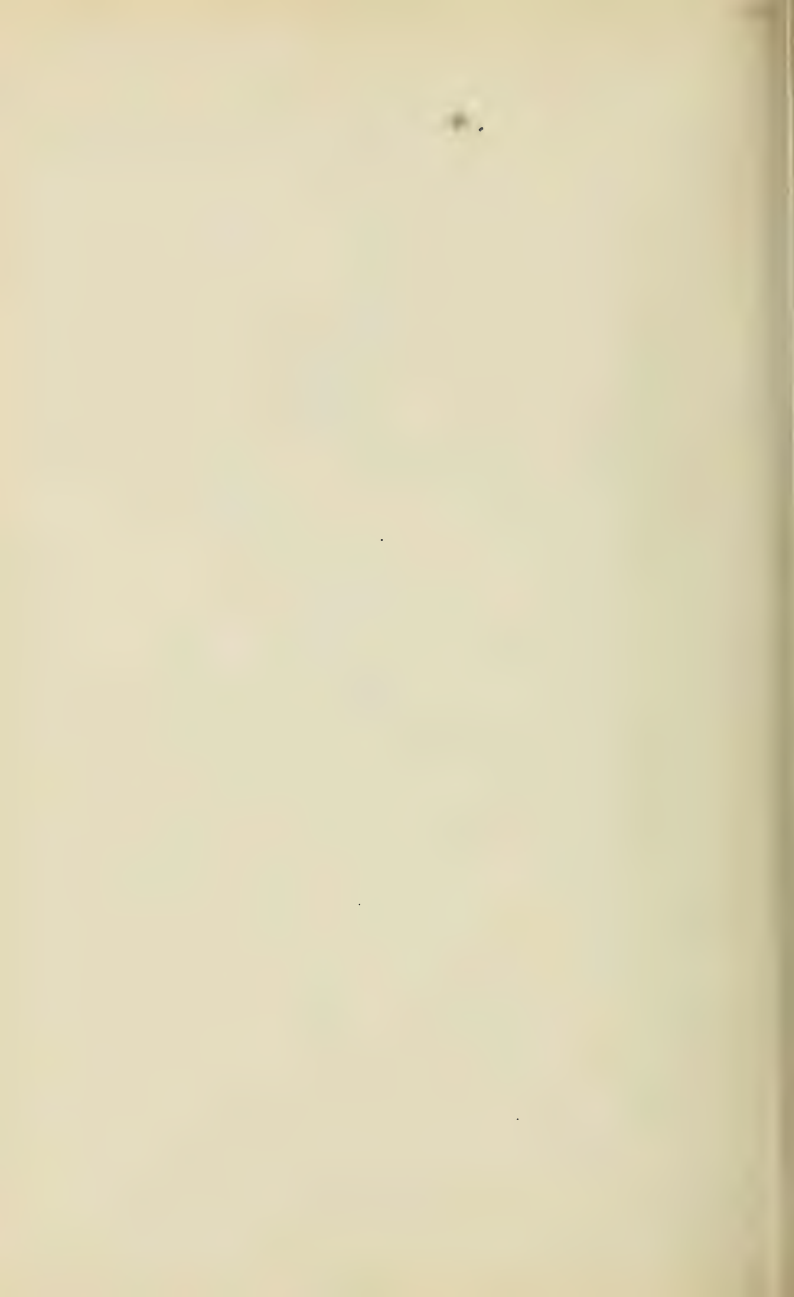
Stachys sylvatica. Hedge Woundwort.





E. R. 1154

Stachys arvensis. Corn Woundwort.





E. B. S. 2669.

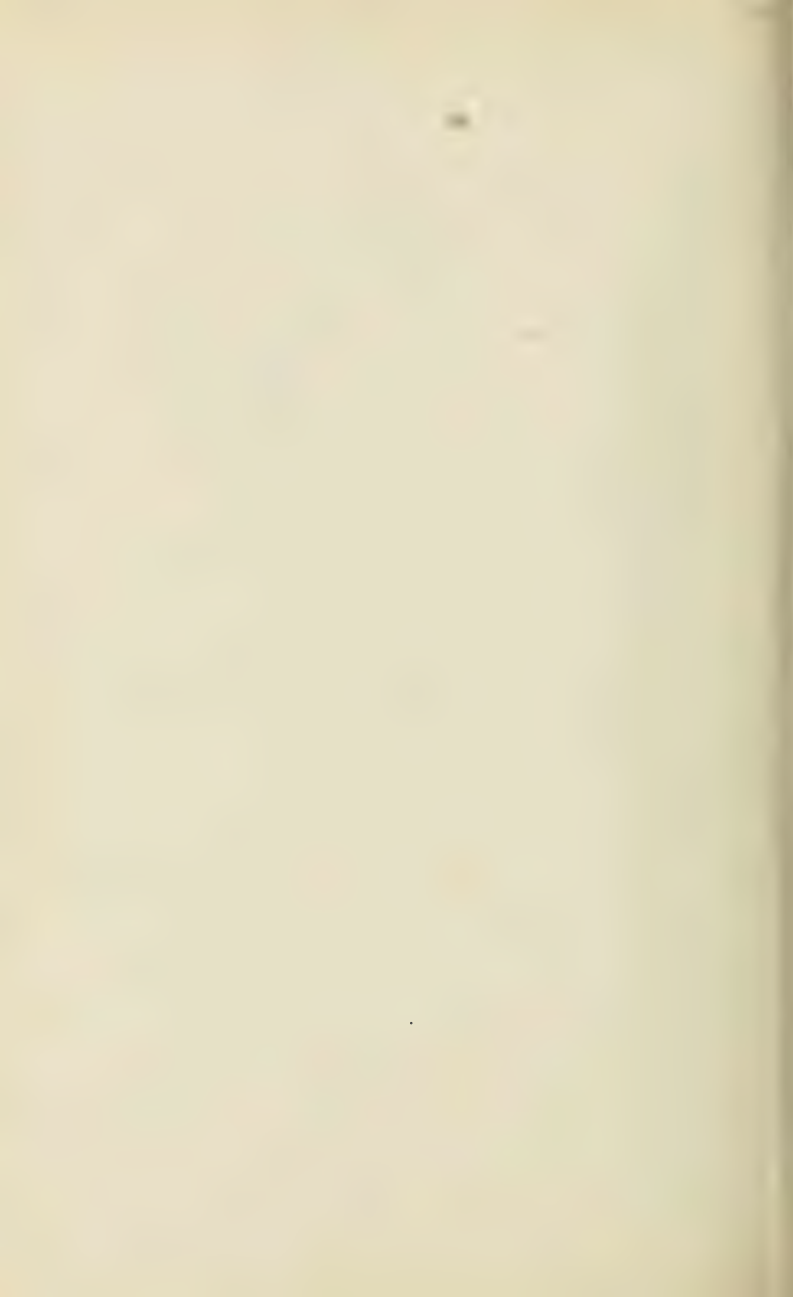
Stachys annua. Pale Annual Woundwort.





E. D. 884.

Galeopsis angustifolia. Narrow-leaved Hemp-nettle.





Galeopsis intermedia. Intermediate Hemp-nettle.





E. D. 2353

Galeopsis ochroleuca. Downy Hemp-nettle.





E. B. 667

Galeopsis versicolor. Large-flowered Hemp-nettle.





E. B. 207.

Galeopsis cu-Tetrahit, var. *genuina*.

Common Hemp-nettle, var. *a*.





Galeopsis cu-Tetrahit, var. *bifida*.

Common Hemp-nettle, var. β





B. 286.

Leonurus Cardina. Motherwort.









Lamium intermedium. Intermediate Dead-nettle.





E. B. 1933.

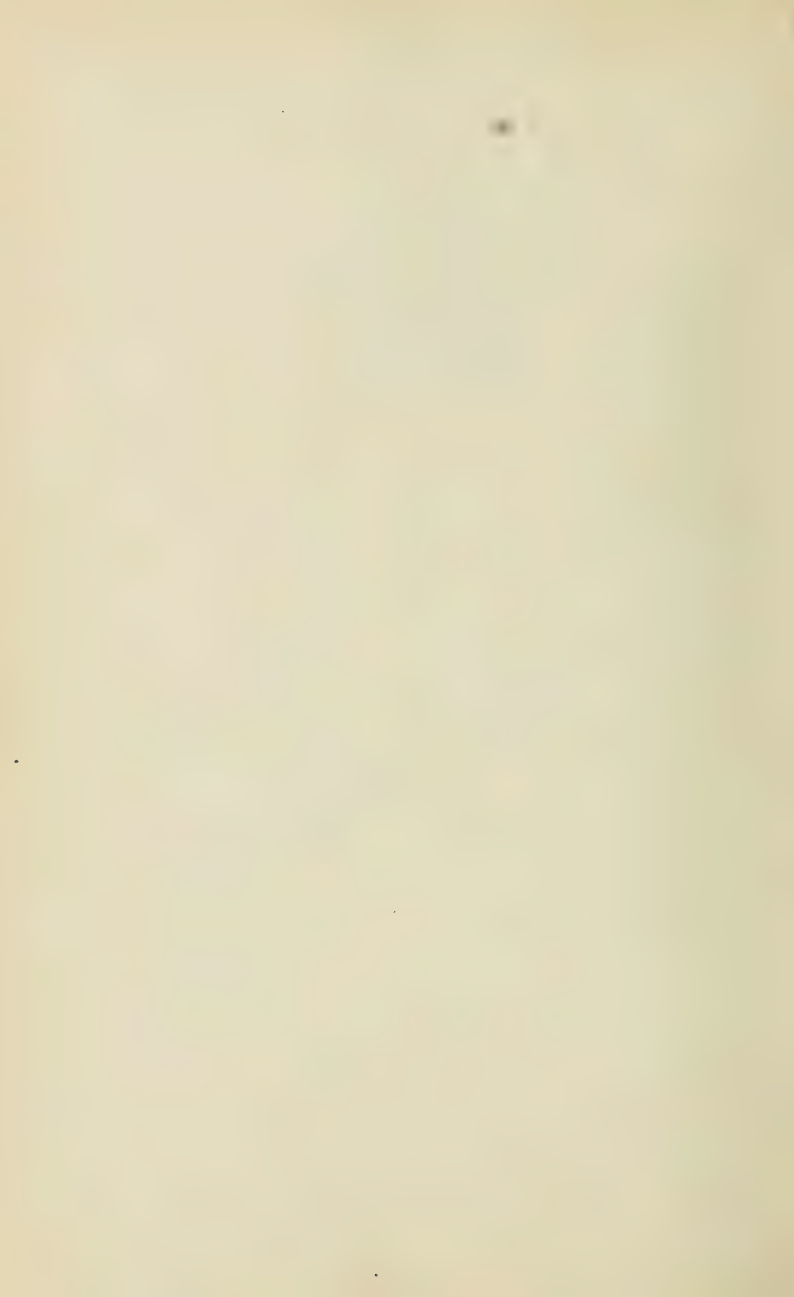
Lamium incisum. Cut-leaved Dead-nettle.





B. 769.

Lamium purpureum. Red Dead-nettle.





E. B. 2550.

Lamium maculatum. Spotted Dead-nettle.





F. B. 768.

Lamium album. White Dead-nettle.





E. B. 787.

Lamium Galeobdolon. Yellow Archangel





E. B. 489.

Ajuga reptans. Common Bugle.





F. B. 1270.

Ajuga pyramidalis. Pyramidal Bugle.





E. D. 77.

Ajuga Chamæpitys. Ground Pine.





E. B. S. 2964.

Teucrium Botrys. Cut-leaved Germander.





E. B. 828.

Teucrium Scordium. Water Germander.





E. B. 1543.

Teucrium Scorodonia.

Wood Germander.





E. B. 680.

Teucrium Chamædrys. Wall Germander.





E. B. 181.

Echium vulgare. Common Viper's-bugloss.





E.B.S. 2798.

Echium plantagineum. Purple Viper's-bugloss.





E. B. 1628

Pedicularis Angustifolia. Narrow-leaved Longwort





Pulmonaria officinalis. Common Lungwort.



*Mertensia maritima.*

Oyster-plant.





E. B. 117.

Lithospermum purpureo-ceruleum. Purple Gromwell.





H. B. 134.

Lithospermum officinale.

Common Gromwell.









E. D. S. 2661.

Myosotis caespitosa. Tufted Water Forget-me-not.





E. B. 1973.

Myosotis palustris. Great Water Forget-me-not.





T. S. 2703.

Myosotis repens. Creeping Water Forget-me-not.









E. B. S. 2630.

Myosotis sylvatica.

Wood Forget-me-not.





S. 2629.

Myosotis arvensis Field Forget-me-not.









Myosotis versicolor. Yellow and Blue Forget-me-not.





















B. 817.

Symphytum officinale, var. *genuinum*.

Common Comfrey, var. *a.*





Symphytum officinale, var. *patens*.

Common Comfrey, var. β .



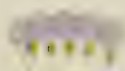


B. B. 1502.

Symphytum tuberosum.

Tuberous Comfrey.













E. B. 661.

Asperugo procumbens. German Madwort.





E. B. 70.

Pinguicula vulgaris. Common Butterwort.





B. 2184.

Pinguicula grandiflora. Large-flowered Butterwort.





B. S. 2747.

Pinguicula alpina. Alpine Butterwort.









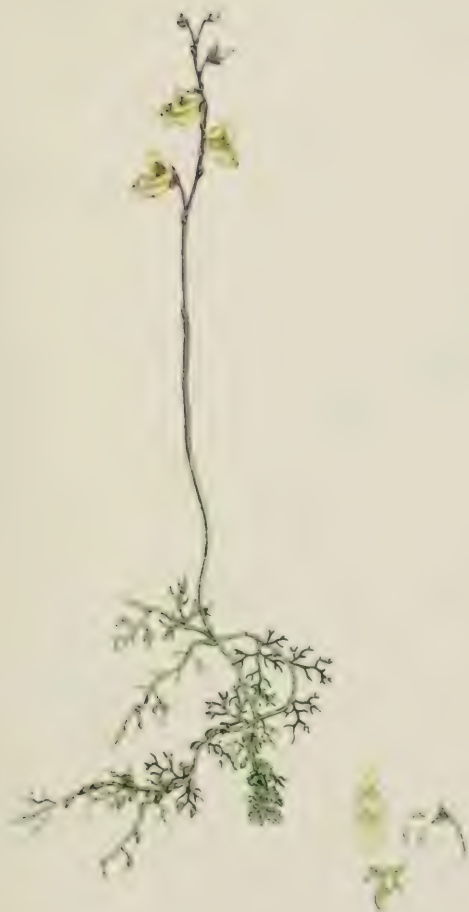
Utricularia vulgaris. Greater Bladderwort.





Utricularia neglecta. Lehman's Bladderwort.





Utricularia minor. Lesser Bladderwort.





B. S. 2489.

Utricularia intermedia. Intermediate Bladderwort.





B. 364.

Hottonia palustris. Water Violet.





Primula vulgaris. Common Primrose.





B. H. 5.

Primula officinalis. Cowslip.





E. B. 513.

Primula elatior. Jaquin's Oxlip.





Primula officinalis-vulgaris. Common Oxlip.





Primula officinali-vulgaris.

Cowslip Oxlip.





E. B. G.

Primula farinosa. Birds-eye Primrose.





. S. 2608.

Primula Scotica.

Scottish Birds-eye Primrose.





Cyclamen hederifolium, var. *genuinum*.

Ivy-leaved Cyclamen, var. *a* (flowers).





Cyclamen hederifolium, var. *genuinum*. Ivy-leaved Cyclamen, var. *a*. (leaves).





B. 548.

Cyclamen hederifolium, var. *ficariifolium*.Ivy-leaved Cyclamen, var. β .









B. 176.

Lysimachia thyrsiflora.

Tufted Loosestrife.







*Lysimachia punctata.*

Punctate lamisestriſe.





E. B. S. 2922.

Lysimachia ciliata. Ciliated Loosestrife.





B. 528.

Lysimachia nummularia. Creeping-jenny.





E. B. 527.

Lysimachia nemorum. Yellow Pimpernel.





E. B. 529.

Anagallis arvensis, var. *phœnicia*. Scarlet Pimpernel.





B. 1823.

Anagallis arvensis, var. *caerulea*.

Blue Pimpernel.





E. B. 530.

Anagallis tenella. Bog Pimpernel.

















E. B. 226.

Armeria vulgaris, var. *maritima*.

Common Thrift, var. *a*.



*Armeria vulgaris*, var. *planifolia*.Common Thrift, var. β .





3. S. 2928.

Armeria plantaginacea.

Plantain-leaved Thrift.





Thalictrum flavum L. (Yellow Thalictrum) and plantain-leaved Thalictrum.







*Statice Behen* var. *pyramidalis*.Great Sea-lavender, var. β .





E. B. S. 2917.

Statice Bahusienensis.

Remote-flowered Sea-lavender.





S. 2663.

Statice binervosa, var. *occidentalis*.

Lesser Sea-lavender, var. n.





Statice binervosa, var. *Dodartii*.

Lesser Sea-lavender, var. β .





V. P. V. V.

Statice Caspia. Matted Sea-lavender









B. 1559.

Plantago media. Hoary Plantain.





B. 507.

Plantago lanceolata, var. *vulgaris*.Common Rib-grass, var. *a*.



*Plantago lanceolata*, var. *Timbali*.

Common Rib-grass, var. 2









Plantago maritima, var. *hirsuta*

Sea Plantain, var. γ .





Plantago Coronopus. Buck's-horn Plantain.









B. 668.

Corrigiola littoralis. Sand Strap-wort.





E. B. 206.

Herniaria glabra. Glabrous Rupture-wort.





Herniaria ciliata Ciliated Rupture-wort.



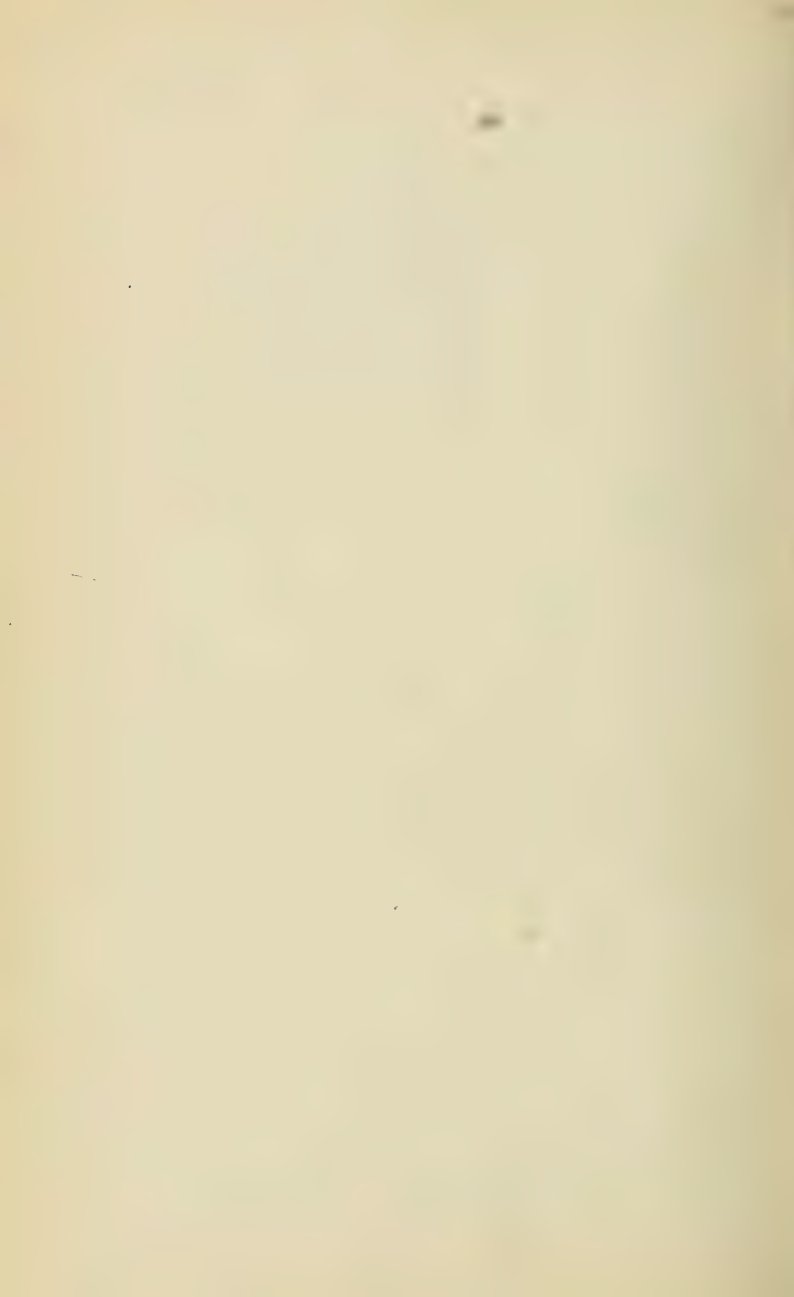






L. B. 351.

Scleranthus annuus, var. *geminus*.Common Knawel, var. *a*.





b



*Scleranthus perennis.*

Perennial Knawel.





E. B. 2212.

Amaranthus Blitum. Wild Amaranth.



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